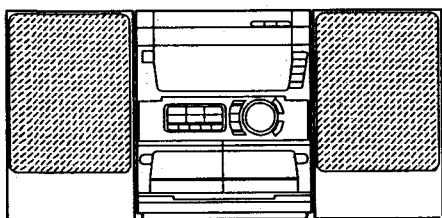


aiwa



NSX-S70 NSX-S74



COMPACT DISC STEREO
CASSETTE RECEIVER

- BASIC TAPE MECHANISM : 2ZM-3MK2 PR4NM
- BASIC CD MECHANISM : 4ZG-1 Z1DNM

- TYPE : 70(EZ, K, V), 74HR

SYSTEM	CD CASSEIVER	SPEAKER	REMOTE CONTROLLER
NSX-S70	CX-NS70 (TYPE : EZ, K,V)	SX-ANS70	RC - 7AS08
NSX-S74	CX-NS74 (TYPE : HR)	SX-NS74 SX-R240	

- If requiring information about the CD mechanism, see Service Manual of 4ZG-1, S/M Code No. 09-974-187-50T.

SPECIFICATIONS

<FM Tuner section>

Tuning range	70EZ,K,74HR: 87.5 MHz to 108 MHz 70V: FM1: 65.0 MHz to 74.0 MHz FM2: 87.5 MHz to 108.0 MHz
Usable sensitivity(IHF)	74HR : 15.8 dBf 70EZ,K : 16.8 dBf 70V: FM1:15.3 dBf FM2:12.8 dBf
Antenna terminals	75 ohms (unbalanced)

<MW Tuner section>

Tuning range	531 kHz to 1602 kHz (9 kHz step) 530 kHz to 1710 kHz (10 kHz step)
Usable sensitivity	350 μ V/m
Antenna	Loop antenna

<LW Tuner section> (70EZ,K,V)

Tuning range	144 kHz to 290 kHz
Usable sensitivity	1400 μ V/m
Antenna	Loop antenna

<SW Tuner section> (74HR)

Tuning range	5.900 MHz to 17.900 MHz
Antenna	Wire antenna

<Amplifier section>

Power output	74HR : Rated 120 W + 120 W (6 ohms, T.H.D.1%, 1 kHz) 70EZ,K,V : Rated 100 W + 100 W (6 ohms, T.H.D.1%, 1 kHz/DIN 45500) Reference: 125 W + 125 W (6 ohms, T.H.D.10%, 1 kHz/DIN 45324) DIN MUSIC POWER 230 W + 230 W
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*without connecting to the SURROUND SPEAKERS

Total harmonic distortion	74HR : 0.05% (110 W, 1 kHz, 6 ohms, DIN AUDIO) 70EZ,K,V : 0.05% (90 W, 1 kHz, 6 ohms, DIN AUDIO)
Inputs	VIDEO/AUX : 210 mV(adjustable) MD : 210mV (adjustable) MIC 1,MIC 2: 1.4mV (10 kohms)
Outputs	LINE OUT: 200mV 74HR : SUPER WOOFER: 2.7 V 70EZ,K,V : SUPER WOOFER: 2.4 V SPEAKERS: accept speakers of 6 ohms or more SURROUND SPEAKERS: accept speakers of 16 ohms or more PHONES (stereo jack) : accepts headphones of 32 ohms or more

<Cassette deck section>

Track format	4 tracks, 2 channels stereo
Frequency response	CrO ₂ tape: 50 Hz – 16000 Hz Normal tape: 50 Hz –15000 Hz
Signal-to noise ratio	60 dB (Dolby B NR ON, CrO ₂ tape peak level)
Recording system	AC bias
Heads	Deck 1 : playback head x 1 Deck 2 : Recording/Playback/erase head x 1

<Compact disc player section>

Laser	Semiconductor laser (λ =780 nm)
D-A converter	1 bit dual
Signal-to-noise ratio	90 dB (1 kHz, 0 dB)
Harmonic distortion	0.03 % (1 kHz, 0 dB)
Wow and flutter	Unmeasurable

<Speaker system SX-ANS70 (For NSX-S70)>

Cabinet type	4 way, bass reflex with surround speaker (magnetic shielded type)
Speakers	Woofer : 160 mm cone type Tweeter : 50 mm cone type Super tweeter : 20 mm ceramic type Cardioid speaker : 80 mm cone type Surround speaker : 80 mm
Impedance	Front speaker : 6 ohms Surround speaker : 16 ohms
Output sound pressure level	87 dB/W/m
Dimensions (W x H x D)	250 x 310 x 280 mm
Weight	4.5 kg

<Speaker system SX-NS74 (For NSX-S74)>

Cabinet type	3 way, bass reflex (magnetic shielded type)
Speakers	Woofer : 160 mm cone type Tweeter : 80 mm cone type Super tweeter: 20 mm ceramic type
Impedance	6 ohms
Output sound pressure level	87 dB/W/m
Dimensions (W x H x D)	243 x 304 x 245mm
Weight	3.8 kg

<General>

Power requirements	70(EZ,K,V) : 230 VAC, 50 Hz 74HR : 120 V/220-230V/240 V AC switchable, 50/60 Hz
Power consumption	70(EZ,K,V) : 150 W 74HR : 170 W
Dimensions of main unit (W x H x D)	70(EZ,K,V) : 260 x 309 x 370 mm 74HR : 260 x 309 x 363 mm
Weight of main unit	70(EZ,K,V) : 9.0 kg 74HR : 8.5 kg

• Design and specifications are subject to change without notice.

• Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

• The word "BBE"and the "BBE symbol" are trademarks of BBE Sound, Inc.
Under license from BBE Sound,Inc.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.



- Caution: Invisible laser radiation when open and interlocks defeated avoid exposure to beam.
- Advarsel: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

VAROITUS!

Laiteen Käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyt-täjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

VARNING!

Om apparaten används på annat sätt än vad som specificeras i denna bruksanvisning, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

ATTENTION

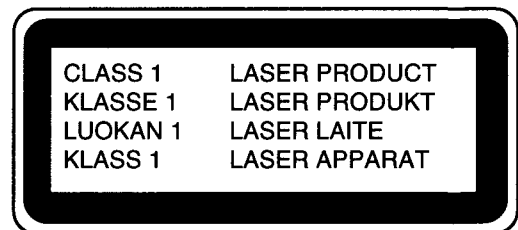
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

ADVARSEL

Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

This Compact Disc player is classified as a CLASS 1 LASER product.

The CLASS 1 LASER PRODUCT label is located on the rear exterior.

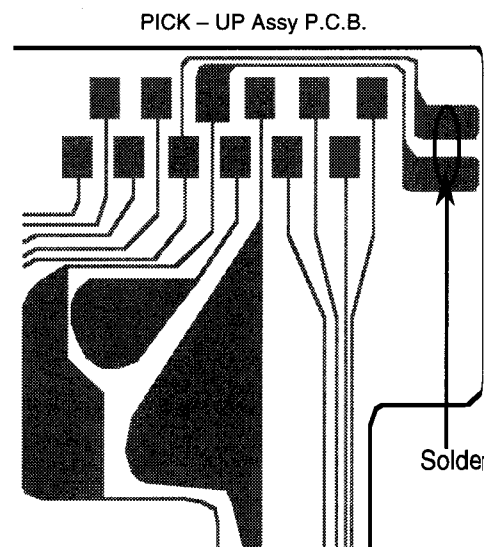


Precaution to replace Optical block

(KSS-213B)

Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use the clothes do not touch the diode.

- 1) After the connection, remove solder shown in figure right.



ELECTRICAL MAIN PARTS LIST

If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
IC				C110	87-010-196-080		C-CAP,S 0.1-25 Z F C2012
	87-020-454-010		IC, DN6851	C111	87-010-196-080		C-CAP,S 0.1-25 Z F C2012
	87-NF4-642-010		IC, LC866548V-5E54	C112	87-010-196-080		C-CAP,S 0.1-25 Z F C2012
	87-070-083-010		IC, GPIU181X	C113	87-010-385-080		CAP,E 220-25 M SME<70EZ,K,V>
	87-A20-455-010		IC, HA12211	C113	87-010-408-080		CAP,E 47-50 SME<74HR>
	87-A20-355-010		IC, CXA1553P	C114	87-010-385-080		CAP,E 220-25 M SME<70EZ,K,V>
	87-A20-083-010		IC, BA3835S	C115	87-010-385-080		CAP,E 220-25 M SME<70EZ,K,V>
	87-A20-450-040		C-IC, BH3864F	C116	87-010-385-080		CAP,E 220-25 M SME<70EZ,K,V>
	87-A20-056-010		IC, BA3880S	C116	87-010-408-080		CAP,E 47-50 SME<74HR>
	87-A20-613-040		C-IC, BU9262AFS	C117	87-010-430-080		CAP,E 100-63
	87-A20-456-040		C-IC, BH3810FS	C118	87-010-263-080		CAP,E 100-10 SME
	87-017-888-080		C-IC, NJM4558MD	C119	87-010-260-080		CAP,E 47-25 SME
	86-NFZ-655-010		IC, LC72131D(Z)	C120	87-010-403-080		CAP,E 3.3-50 M SME
	87-A20-438-010		IC, LA1837	C121	87-012-140-080		C-CAP,S 470P-50 J CH
	87-A20-440-040		C-IC, BU1920FS<70EZ>	C123	87-010-247-080		CAP,E 100-50 M SME
TRANSISTOR				C124	87-010-112-080		CAP,E 100-16 M SME
	87-026-263-080		C-TR, RN1410	C125	87-010-235-080		CAP,E 470-16 SME
	89-213-702-010		TR, 2SB1370E	C126	87-010-196-080		C-CAP,S 0.1-25 ZF C2012<70EZ,K,V>
	87-A30-076-080		C-TR, 2SC3052F	C127	87-010-196-080		C-CAP,S 0.1-25 ZF C2012<70EZ,K,V>
	87-A30-075-080		C-TR, 2SA1235F<74HR>	C129	87-010-393-080		CAP,E 100-35 M SME
	87-026-610-080		TR, KTC3198GR	C200	87-010-196-080		C-CAP,S 0.1-25 ZF C2012<70EZ,K,V>
	87-A30-073-080		C-TR, RT1N 141C	C201	87-010-400-080		CAP,E 0.47-50 M SME
	87-A30-085-070		C-TR, CSA1362GR	C202	87-010-400-080		CAP,E 0.47-50 M SME
	87-A30-083-080		TR, CSD1489B	C205	87-010-181-080		C-CAP,S 1800P-50 K B
	87-A30-084-080		TR, CSB1058B	C206	87-010-181-080		C-CAP,S 1800P-50 K B
	87-A30-071-080		C-TR, RT1N 144C	C207	87-010-404-080		CAP,E 4.7-50 M SME
	87-026-609-080		TR, KTA1266GR	C208	87-010-404-080		CAP,E 4.7-50 M SME
	87-A30-086-070		C-TR, CSD1306E	C209	87-010-404-080		CAP,E 4.7-50 M SME
	87-A30-106-070		C-TR, CMBT5551	C210	87-010-404-080		CAP,E 4.7-50 M SME
	87-A30-111-080		TR, C2N5401	C211	87-010-186-080		C-CAP,S 4700P-50 K B
	87-A30-097-010		TR, FN1016	C212	87-010-186-080		C-CAP,S 4700P-50 K B
	87-A30-098-010		TR, FP1016	C213	87-010-260-080		CAP,E 47-25 SME
	87-A30-089-010		FET, 2SK2723	C214	87-010-260-080		CAP,E 47-25 SME
	87-A30-072-080		C-TR, RT1P 144C	C215	87-010-196-080		C-CAP,S 0.1-25 Z F
	87-A30-087-080		C-FET, 2SK2158	C219	87-010-196-080		C-CAP,S 0.1-25 ZF C2012<70EZ,K,V>
	87-A30-074-080		C-TR, RT1P 141C	C219	87-012-368-080		C-CAP,S 0.1-50 FZ<74HR>
	89-327-143-080		C-TR, 2SC2714(O)	C220	87-010-196-080		C-CAP,S 0.1-25 ZF C2012<70EZ,K,V>
	89-505-434-540		C-FET, 2SK543-TB(4/5)<70EZ,K,V>	C220	87-012-368-080		C-CAP,S 0.1-50 FZ<74HR>
DIODE				C221	87-010-196-080		C-CAP,S 0.1-25 ZF C2012<70EZ,K,V>
	87-017-654-060		DIODE, GBU6JL6131	C222	87-010-196-080		C-CAP,S 0.1-25 ZF C2012<70EZ,K,V>
	87-017-437-080		DIODE, 1N4148M	C222	87-012-368-080		C-CAP,S 0.1-50 FZ<74HR>
	87-A40-269-080		C-DIODE, MC2836	C223	87-010-194-080		C-CAP,S 0.047-25 Z F<74HR>
	87-A40-270-080		C-DIODE, MC2838	C225	87-A10-516-080		C-CAP,S 100P-200 J CH
	87-070-274-080		DIODE, 1N4003 SEM	C226	87-A10-516-080		C-CAP,S 100P-200 J CH
	87-A40-205-080		ZENER, UZ6.2BSC	C227	87-018-134-080		CAP,TC U 0.01-16NYUP050<70EZ,K,V>
	87-A40-211-080		ZENER, UZ36BSA	C228	87-018-131-080		CAP,TC U 1000P-50KB <70EZ,K,V>
	87-A40-206-080		ZENER, UZ10BSC	C229	87-016-461-080		C-CAP,S 0.47-16 ZF
	87-A40-202-080		ZENER, UZ5.1BSB	C230	87-016-461-080		C-CAP,S 0.47-16 ZF
	87-A40-184-090		DIODE, RK34(F)	C231	87-010-176-080		C-CAP,S 680P-50 J SL<70EZ,K,V>
	87-A40-246-080		DIODE, 1N4148T-72	C232	87-010-176-080		C-CAP,S 680P-50 J SL<70EZ,K,V>
	87-017-481-080		ZENER, UZ-5.6BSB	C233	87-010-318-080		CAP,S 47P-50 J CH<70EZ,K,V>
	87-A40-192-080		ZENER, UZ4.3BSA	C234	87-010-318-080		CAP,S 47P-50 J CH<70EZ,K,V>
	87-A40-239-080		ZENER, UZ5.6BSA	C235	87-010-213-080		CAP,S 0.015-25 K B<70EZ,K,V>
	87-A40-004-080		ZENER, MTZJ16A	C236	87-010-197-080		C-CAP,S 0.01-25 K B<70EZ,K,V>
MAIN C.B				C237	87-010-197-080		C-CAP,S 0.01-25 K B<70EZ,K,V>
C101	87-A10-059-090		CAP,E 3300-75	C238	87-010-197-080		C-CAP,S 0.01-25 K B<70EZ,K,V>
C102	87-A10-059-090		CAP,E 3300-75	C239	87-010-318-080		C-CAP,S 47P-50 J CH<70EZ,K,V>
C103	87-016-658-090		CAP,E 4700-35 M SMG	C240	87-010-318-080		C-CAP,S 47P-50 J CH<70EZ,K,V>
C104	87-016-658-090		CAP,E 4700-35 M SMG	C242	87-010-406-080		CAP,E 22-50 M SME
C105	87-012-368-080		C-CAP,S 0.1-50 Z F	C243	87-010-197-080		C-CAP,S 0.01-25 K B
C106	87-012-368-080		C-CAP,S 0.1-50 Z F	C244	87-010-406-080		CAP,E 22-50 M SME
C107	87-012-368-080		C-CAP,S 0.1-50 Z F	C301	87-010-318-080		C-CAP,S 47P-50 J CH
C108	87-012-368-080		C-CAP,S 0.1-50 Z F	C302	87-010-318-080		C-CAP,S 47P-50 J CH
C109	87-010-196-080		C-CAP,S 0.1-25 Z F C2012	C303	87-012-157-080		C-CAP,S 330P-50 J CH GRM
				C304	87-012-157-080		C-CAP,S 330P-50 J CH GRM
				C305	87-012-145-080		C-CAP,S 270P-50 J CH
				C306	87-012-145-080		C-CAP,S 270P-50 J CH
				C307	87-010-196-080		C-CAP,S 0.1-25 Z F C2012
				C311	87-010-198-080		C-CAP,S 0.022-25 K B

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
C312	87-010-198-080	C-CAP,S	0.022-25 K B	C609	87-010-322-080	C-CAP,S	100P-50 J CH<70EZ,K,V>
C313	87-010-180-080	C-CAP,S	1500P-50 K B	C610	87-010-322-080	C-CAP,S	100P-50 J CH<70EZ,K,V>
C314	87-010-180-080	C-CAP,S	1500P-50 K B	C611	87-016-081-080	C-CAP,S	0.1-16 KR
C315	87-010-178-080	C-CAP,S	1000P-50 K B	C613	87-010-404-080	CAP,E	4.7-50 M SME
C316	87-010-178-080	C-CAP,S	1000P-50 K B	C614	87-010-404-080	CAP,E	4.7-50 M SME
C317	87-012-142-080	C-CAP,S	0.33-16 Z F	C615	87-010-183-080	C-CAP,S	2700P-50 K B<70EZ,K,V>
C318	87-012-142-080	C-CAP,S	0.33-16 Z F	C619	87-010-263-080	CAP,E	100-10 SME
C319	87-012-141-080	C-CAP,S	0.22-16 Z F	C620	87-010-196-080	C-CAP,S	0.1-25 Z F C2012
C320	87-012-141-080	C-CAP,S	0.22-16 Z F	C621	87-010-263-080	CAP,E	100-10 SME
C321	87-012-141-080	C-CAP,S	0.22-16 Z F	C622	87-010-196-080	C-CAP,S	0.1-25 Z F C2012
C322	87-012-141-080	C-CAP,S	0.22-16 Z F	C623	87-010-194-080	C-CAP,S	0.047-25 Z F
C324	87-010-260-080	CAP,E	47-25 SME	C629	87-012-368-080	C-CAP,S	0.1-50 FZ
C325	87-010-370-080	CAP,E	330-6.3 M SME	C630	87-010-196-080	C-CAP,S	0.1-25 ZF<70EZ,K,V>
C327	87-010-404-080	CAP,E	4.7-50 M SME	C632	87-010-196-080	C-CAP,S	0.1-25 ZF <70EZ,K,V>
C328	87-010-404-080	CAP,E	4.7-50 M SME	C631	87-015-785-080	C-CAP,	0.1-25 ZF <70EZ,K,V>
C332	87-010-196-080	C-CAP,S	0.1-25 Z F C2012	C633	87-010-197-080	C-CAP,S	0.01-25 K B<70EZ,K,V>
C335	87-010-401-080	CAP,E	1-50 M SME	C636	87-010-322-080	C-CAP,S	100P-50 J CH<70EZ,K,V>
C336	87-010-401-080	CAP,E	1-50 M SME	C637	87-010-322-080	C-CAP,S	100P-50 J CH<70EZ,K,V>
C337	87-010-196-080	C-CAP,S	0.1-25 Z F C2012	C646	87-010-322-080	C-CAP,S	100P-50 J CH
C339	87-010-196-080	C-CAP,S	0.1-25 Z F C2012	C647	87-010-322-080	C-CAP,S	100P-50 J CH
C340	87-010-196-080	C-CAP,S	0.1-25 Z F C2012	C701	87-010-381-080	CAP,E	330-16 SME
C351	87-012-140-080	C-CAP,S	470P-50 J CH	C702	87-010-404-080	CAP,E	4.7-50 M SME
C352	87-012-140-080	C-CAP,S	470P-50 J CH	C703	87-010-197-080	C-CAP,S	0.01-25 K B
C354	87-010-175-080	C-CAP,S	560P-50 J SL	C704	87-010-197-080	C-CAP,S	0.01-25 K B
C355	87-010-178-080	C-CAP,S	1000P-50 K B	C711	87-010-263-080	CAP,E	100-10 SME
C356	87-010-260-080	CAP,E	47-25 SME	C712	87-010-196-080	C-CAP,S	0.1-25 Z F C2012
C357	87-010-197-080	C-CAP,S	0.01-25 K B	C713	87-010-197-080	C-CAP,S	0.01-25 K B
C358	87-010-183-080	C-CAP,S	2700P-50 K B	C714	87-010-197-080	C-CAP,S	0.01-25 K B
C359	87-010-183-080	C-CAP,S	2700P-50 K B	C715	87-010-322-080	C-CAP,S	100P-50 J CH<70EZ,K,V>
C360	87-010-183-080	C-CAP,S	2700P-50 K B	C721	87-010-312-080	C-CAP,S	15P-50 J CH
C370	87-010-196-080	C-CAP,S	0.1-25 Z F C2012	C722	87-010-312-080	C-CAP,S	15P-50 J CH
C371	87-010-179-080	C-CAP,S	1200P-50 K B	C723	87-010-178-080	C-CAP,S	1000P-50 K B
C372	87-010-179-080	C-CAP,S	1200P-50 K B	C725	87-010-178-080	C-CAP,S	1000P-50 K B
C373	87-010-179-080	C-CAP,S	1200P-50 K B	C727	87-010-196-080	C-CAP,S	0.1-25 Z F C2012
C374	87-010-179-080	C-CAP,S	1200P-50 K B	C728	87-010-248-080	CAP,E	220-10 SME
C375	87-010-545-080	CAP,E	0.22-50 M SME	C755	87-010-197-080	C-CAP,S	0.01-25 K B
C376	87-010-545-080	CAP,E	0.22-50 M SME	C756	87-010-197-080	C-CAP,S	0.01-25 K B
C378	87-010-196-080	C-CAP,S	0.1-25 Z F C2012	C757	87-010-318-080	C-CAP,S	47P-50 J CH
C381	87-010-197-080	C-CAP,S	0.01-25 K B	C758	87-010-149-080	C-CAP,S	5P-50 CH
C382	87-010-318-080	C-CAP,S	47P-50 J CH	C761	87-010-196-080	C-CAP,S	0.1-25 Z F C2012
C383	87-010-197-080	C-CAP,S	0.01-25 K B	C762	87-010-197-080	C-CAP,S	0.01-25 K B
C384	87-010-402-080	CAP,E	2.2-50 M SME	C763	87-010-194-080	C-CAP,S	0.047-25 Z F
C385	87-010-184-080	C-CAP,S	3300P-50 K B	C765	87-010-197-080	C-CAP,S	0.01-25 K B
C386	87-010-196-080	C-CAP,S	0.1-25 Z F C2012	C766	87-010-197-080	C-CAP,S	0.01-25 K B
C388	87-010-154-080	C-CAP,S	10P-50 D CH	C767	87-010-405-080	CAP,E	10-50 M SME
C401	87-010-187-080	C-CAP,S	5600P-50 K B	C768	87-010-197-080	C-CAP,S	0.01-25 K B
C402	87-010-187-080	C-CAP,S	5600P-50 K B	C769	87-010-408-080	CAP,E	47-50 SME
C403	87-010-405-080	CAP,E	10-50 M SME	C770	87-015-821-080	C-CAP,	0.047-50 Z F GR
C404	87-010-405-080	CAP,E	10-50 M SME	C771	87-010-407-080	CAP,E	33-50 SME
C405	87-010-260-080	CAP,E	47-25 SME	C772	87-010-194-080	C-CAP,S	0.047-25 Z F
C406	87-010-101-080	CAP,E	220-16 SME	C773	87-010-196-080	C-CAP,S	0.1-25 Z F C2012
C407	87-010-188-080	C-CAP,S	6800P-50 K B	C774	87-010-263-080	CAP,E	100-10 SME
C408	87-010-188-080	C-CAP,S	6800P-50 K B	C775	87-010-404-080	CAP,E	4.7-50 M SME
C409	87-012-140-080	C-CAP,S	470P-50 J CH	C776	87-010-197-080	C-CAP,S	0.01-25 K B<70EZ,K,V>
C410	87-012-140-080	C-CAP,S	470P-50 J CH	C777	87-010-400-080	CAP,E	0.47-50 M SME
C411	87-010-197-080	C-CAP,S	0.01-25 K B	C778	87-010-401-080	CAP,E	1-50 M SME
C412	87-010-197-080	C-CAP,S	0.01-25 K B	C779	87-010-401-080	CAP,E	1-50 M SME
C413	87-010-195-080	C-CAP,S	0.068-25 Z F C2012	C780	87-010-196-080	C-CAP,S	0.1-25 Z F C2012
C414	87-010-195-080	C-CAP,S	0.068-25 Z F C2012	C781	87-010-405-080	CAP,E	10-50 M SME
C415	87-010-404-080	CAP,E	4.7-50 M SME	C782	87-010-405-080	CAP,E	10-50 M SME
C416	87-010-404-080	CAP,E	4.7-50 M SME	C783	87-015-819-080	C-CAP,	0.01-50 K B
C417	87-010-404-080	CAP,E	4.7-50 M SME	C784	87-010-197-080	C-CAP,S	0.01-25 K B
C418	87-010-404-080	CAP,E	4.7-50 M SME	C785	87-010-400-080	CAP,E	0.47-50 M SME
C421	87-010-401-080	CAP,E	1-50 M SME	C786	87-010-400-080	CAP,E	0.47-50 M SME
C422	87-010-401-080	CAP,E	1-50 M SME	C787	87-010-184-080	C-CAP,S	3300P-50 K B
C516	87-010-196-080	C-CAP,S	0.1-25 Z F C2012	C788	87-010-184-080	C-CAP,S	3300P-50 K B
C601	87-010-322-080	C-CAP,S	100P-50 J CH<70EZ,K,V>	C789	87-010-179-080	C-CAP,S	1200P-50 K B
C602	87-010-322-080	C-CAP,S	100P-50 J CH<70EZ,K,V>	C790	87-010-179-080	C-CAP,S	1200P-50 K B
C605	87-010-180-080	C-CAP,S	1500P-50 K B<74HR>	C791	87-010-405-080	CAP,E	10-50 M SME
C606	87-010-180-080	C-CAP,S	1500P-50 K B	C793	87-010-178-080	C-CAP,S	1000P-50 KB<70EZ,K,V>

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
C793	87-012-156-080	C-CAP,S 220P-50 J CH GRM<70EZ>	L791	87-A50-027-010	COIL, 1 POLE MPX (TOK)		
C794	87-010-406-080	CAP,E 22-50 M SME	L792	87-A50-027-010	COIL, 1 POLE MPX (TOK)		
C795	87-010-596-080	C-CAP,S 0.047-16 K R	L941	87-A50-022-010	COIL,ANT SW (COI) 7.96MHZ<74HR>		
C796	87-010-403-080	CAP,E 3.3-50 M SME	L941	87-A50-020-010	COIL,ANT LW (COI) 252KHZ<70EZ,K,V>		
C797	87-010-180-080	C-CAP,S 1500P-50 K B	L942	87-A50-019-010	COIL,OSC LW (COI) 856KHZ<70EZ,K,V>		
C798	87-010-180-080	C-CAP,S 1500P-50 K B	L942	87-A50-173-010	COIL,OSC SW-N (COI)<74HR>		
C799	87-010-194-080	C-CAP,S 0.047-25 Z F	L943	87-005-372-080	COIL,1UH (K) LAL03<74HR>		
C812	87-010-197-080	C-CAP,S 0.01-25 K B	L944	87-A50-159-010	COIL,10UH K C2B<74HR>		
C814	87-010-197-080	C-CAP,S 0.01-25 K B	L981	86-NF4-666-010	COIL,AM PACK3 (TOK)<74HR>		
C820	87-010-408-080	CAP,E 47-50 SME	L981	86-NF4-668-010	COIL,AM PACK 2 (TOM)<70EZ,K,V>		
C821	87-010-197-080	C-CAP,S 0.01-25 K B	△ PR201	87-026-682-080	PROTECTOR,10A 491SERIES 60V		
C822	87-010-197-080	C-CAP,S 0.01-25 K B	△ PR202	87-026-682-080	PROTECTOR,10A 491SERIES 60V		
C823	87-010-197-080	C-CAP,S 0.01-25 K B	R123	87-022-200-080	RES,M/F 0.56-1W J<74HR>		
C828	87-010-196-080	C-CAP,S 0.1-25 Z F C2012	R231	87-A00-262-080	RES,M/F 0.15-2W J		
C829	87-010-196-080	C-CAP,S 0.1-25 Z F C2012	R232	87-A00-262-080	RES,M/F 0.15-2W J		
C859	87-010-197-080	C-CAP,S 0.01-25 K B<70EZ>	RY101	87-045-389-010	RELAY,12V OSA-SS-212DM5		
C861	87-010-156-080	C-CAP,S 220P-50 J CH<70EZ>	RY201	87-045-382-010	RELAY,12V OUAZ-SH-112L		
C862	87-010-156-080	C-CAP,S 220P-50 J CH<70EZ>	SFR301	87-024-435-080	SFR,33K H RH063MC		
C863	87-012-140-080	C-CAP,S 470P-50 J CH<70EZ>	SFR302	87-024-435-080	SFR,33K H RH063MC		
C864	87-010-405-080	CAP,E 10-50 M SME<70EZ>	SFR303	87-024-435-080	SFR,33K H RH063MC		
C865	87-010-196-080	C-CAP,S 0.1-25 ZF C2012<70EZ>	SFR304	87-024-435-080	SFR,33K H RH063MC		
C866	87-010-405-080	CAP,E 10-50 M SME<70EZ>	SFR305	87-024-436-080	SFR,47K H RH063MC		
C867	87-010-197-080	C-CAP,S 0.01-25 K B<70EZ>	SFR306	87-024-436-080	SFR,47K H RH063MC		
C868	87-010-316-080	C-CAP,S 33P-50 J CH<70EZ>	SFR351	87-024-436-080	SFR,47K H RH063MC		
C869	87-010-314-080	C-CAP,S 22P-50 J CH<70EZ>	SFR352	87-024-436-080	SFR,47K H RH063MC		
C940	87-010-197-080	C-CAP,S 0.01-25 K B	TC941	87-011-220-080	TRIMMER,CER 20P 6.15X5.9<74HR>		
C941	87-010-314-080	C-CAP,S 22P-50 J CH<74HR>	TC942	87-011-221-080	TRIMMER,CER 30P 6.15X5.9<74HR>		
C942	87-010-151-080	C-CAP,S 7P-50 D CH<70EZ,K,V>	TC942	87-011-253-080	TRIMMER,30P LAK<70EZ,K,V>		
C943	87-010-197-080	C-CAP,S 0.01-25 K B<74HR>	TH201	87-A90-221-080	C-THMS,100K		
C944	87-014-051-080	CAP,PP 560P-100 J <74HR>	TH202	87-A90-221-080	C-THMS,100K		
C945	87-010-197-080	C-CAP,S 0.01-25 K B<74HR>	W1	85-NF5-628-010	F-CABLE,7P-2.5		
C947	87-010-197-080	C-CAP,S 0.01-25 K B	X721	87-A70-061-010	VIB,XTAL 4.500MHZ CSA-309		
C949	87-014-049-080	CAP,PP 470P-100 J<70EZ,K,V>	X771	87-030-354-010	VIB,CER 450.0KHZ BFU C<74HR>		
C950	87-014-073-080	CAP,PP 4700P-100 J <74HR>	X850	87-KT1-608-010	X,TAL 4.332MHZ<70EZ>		
C952	87-010-197-080	C-CAP,S 0.01-25 K B					
C953	87-010-197-080	C-CAP,S 0.01-25 K B<74HR>	FRONT C.B				
C954	87-010-400-080	CAP,E 0.47-50 M SME<74HR>	C103	87-010-197-080	C-CAP,S 0.01-25 K B		
C956	87-010-263-080	CAP,E 100-10 M SME<74HR>	C104	87-010-312-080	C-CAP,S 15P-50 J CH		
C957	87-010-311-080	C-CAP,S 12P-50 J CH<70EZ,K,V>	C105	87-010-316-080	C-CAP,S 33P-50 J CH		
C958	87-010-197-080	C-CAP,S 0.01-25 K B<70EZ,K,V>	C106	87-010-320-080	C-CAP,S 68P-50 J CH		
C959	87-010-196-080	C-CAP,S 0.1-25 Z F C2012	C107	87-012-157-080	C-CAP,S 330P-50 J CH GRM		
C960	87-010-196-080	C-CAP,S 0.1-25 Z F C2012					
C962	87-010-401-080	CAP,E 1-50 M SME	C108	87-010-560-040	CAP,E 10-50 M 5L MA		
CF801	87-008-261-010	FLTR,CFSFE10.7MA5<74HR>	C109	87-010-401-040	CAP,E 1-50 M SME		
CF801	87-008-423-010	FLTR,IFSFE10.7MS3G-A<70EZ,K,V>	C110	87-010-196-080	C-CAP,S 0.1-25 Z F C2012		
CF802	87-008-261-010	FLTR,CFSFE10.7MA5<74HR>	C111	87-010-196-080	C-CAP,S 0.1-25 Z F C2012		
CF802	82-785-747-010	CF,MS2 GHY,R<70EZ,K,V>	C112	87-010-196-080	C-CAP,S 0.1-25 Z F C2012		
FB301	87-008-372-080	FLTR,EMIBL01 RN1<70EZ,K,V>	C113	87-A10-189-040	CAP,E 220-10 M		
FFE801	A8-7ZA-290-030	7ZA-2 FEUNM<74HR>	C114	87-010-196-080	C-CAP,S 0.1-25 Z F C2012		
FFE801	A8-6ZA-195-030	6ZA-1 YFEENM<70EZ,K>	C115	87-010-178-080	C-CAP,S 1000P-50 K B		
FFE801	A8-6ZA-193-030	6ZA-1 FEVNM<70V>	C116	87-010-494-040	CAP,E 1-50 5L SRE		
J252	87-A60-024-010	JACK,DIA6.3 BLK ST W/SW KM	C117	87-010-555-040	CAP,E 100-10 5L SRE		
J253	87-099-474-010	JACK,PIN 3P BLK W/SW	C118	87-010-194-080	C-CAP,S 0.047-25 Z F		
J254	87-A60-238-010	TERMINAL,SP 4P (MSC)	C119	87-010-408-040	CAP,E 47-50 M SME		
J601	87-A60-426-010	JACK,PIN 6P YKC21-3835	C120	87-010-404-040	CAP,E 4.7-50 SME		
J801	87-A60-202-010	TERMINAL,ANT4PMSF-154V-02<74HR,70V>	C121	87-010-404-040	CAP,E 4.7-50 SME		
J801	87-A60-427-010	TERMINAL,ANT PAL 2P YKD3<70EZ,K>	C122	87-010-194-080	C-CAP,S 0.047-25 Z F		
J940	81-754-629-010	CONNECTOR,XH 2P(UL)<74HR>	C123	87-010-196-080	C-CAP,S 0.1-25 Z F C2012		
L201	87-003-383-010	COIL,1UH K	C124	87-010-196-080	C-CAP,S 0.1-25 Z F C2012		
L202	87-003-383-010	COIL,1UH K	C125	87-010-196-080	C-CAP,S 0.1-25 Z F C2012		
L301	87-A50-049-010	COIL,TRAP 85K(COI)	C127	87-010-196-080	C-CAP,S 0.1-25 Z F C2012		
L302	87-A50-049-010	COIL,TRAP 85K(COI)	C128	87-010-178-080	C-CAP,S 1000P-50 K B		
L351	87-007-342-010	COIL,OSC 85KHZ BIAS	C351	87-012-158-080	C-CAP,S 390P-50 J CH GRM		
L601	87-003-231-080	C-COIL,2125 1UH	C352	87-010-196-080	C-CAP,S 0.1-25 Z F C2012		
L770	87-005-849-080	COIL,10UH K CECS	C353	87-010-196-080	C-CAP,S 0.1-25 Z F C2012		
L771	87-A50-165-010	COIL,FM DET-N(TOK)	C354	87-010-196-080	C-CAP,S 0.1-25 Z F C2012		
L772	87-A90-052-010	FLTR,CFMT-450A (TOK)<74HR>	C355	87-010-196-080	C-CAP,S 0.1-25 Z F C2012		
L772	87-A90-245-010	FLTR,CFAZH-450 (TOK)<70EZ,K,V>	C356	87-010-196-080	C-CAP,S 0.1-25 Z F C2012		
L850	87-005-847-080	COIL,2.2UH K CECS<70EZ>	C357	87-010-196-080	C-CAP,S 0.1-25 Z F C2012		
L832	87-005-847-080	COIL,2.2UH K CECS	C605	87-010-196-080	C-CAP,S 0.1-25 Z F C2012		

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
FB601	87-008-372-080		FLTR,EMIBL01 RN1	C131	87-010-263-080		CAP,E 100-10 SME<74HR>
FL101	87-NF5-611-010		FL,BJ530GK 7NF-5	C132	87-010-380-080		CAP,E 47-16 M SME<74HR>
J601	87-A60-284-010		JACK,3.5MO (MSC)				
J602	87-A60-284-010		JACK,3.5MO (MSC)				
LED201	87-A40-317-080		LED,SLR-342VCT31 RED	AC2 C.B			
LED202	87-A40-317-080		LED,SLR-342VCT31 RED	△ PR1	87-026-682-080		PROTECTOR,10A 491SERIES 60V
LED203	87-A40-317-080		LED,SLR-342VCT31 RED	△ PR2	87-026-682-080		PROTECTOR,10A 491SERIES 60V
LED204	87-A40-317-080		LED,SLR-342VCT31 RED	△ PR5	87-026-691-080		FUSE,10A 125V 251
LED205	87-A40-317-080		LED,SLR-342VCT31 RED	△ PR6	87-026-682-080		PROTECTOR,10A 491SERIES 60V
LED206	87-A40-316-080		LED,SLR-56PCT31 GRN				
LED207	87-A40-316-080		LED,SLR-56PCT31 GRN	AC1 C.B			
LED208	87-A40-316-080		LED,SLR-56PCT31 GRN	△ FC1	87-033-147-010		FUSE CLAMP,MT-20<74HR>
LED209	87-A40-316-080		LED,SLR-56PCT31 GRN	△ FC1	87-A90-505-080		FUSE CLAMP,TP0351-5<70V>
LED210	87-A40-316-080		LED,SLR-56PCT31 GRN	△ FC1	87-033-213-080		FUSE CLAMP,PFC5000<70EZ,K>
LED211	87-A40-316-080		LED,SLR-56PCT31 GRN	△ FC2	87-033-147-010		FUSE CLAMP,MT-20<74HR>
LED212	87-A40-316-080		LED,SLR-56PCT31 GRN	△ FC2	87-A90-505-080		FUSE CLAMP,TP0351-5<70V>
LED213	87-A40-316-080		LED,SLR-56PCT31 GRN				
LED214	87-A40-316-080		LED,SLR-56PCT31 GRN	△ FC2	87-033-213-080		FUSE CLAMP,PFC5000<70EZ,K>
LED215	87-A40-316-080		LED,SLR-56PCT31 GRN	△ FC3	87-033-147-010		FUSE CLAMP,MT-20<74HR>
LED216	87-A40-263-080		LED,SLH-56PCT31 GRN	△ FC4	87-033-147-010		FUSE CLAMP,MT-20<74HR>
LED217	87-A40-263-080		LED,SLH-56PCT31 GRN	△ F101	87-035-457-010		FUSE,3.15A 250V T218
LED218	87-A40-263-080		LED,SLH-56PCT31 GRN	△ F102	87-035-457-010		FUSE,3.15A 250V T218<74HR>
LED219	87-A40-263-080		LED,SLH-56PCT31 GRN				
LED220	87-A40-263-080		LED,SLH-56PCT31 GRN	△ PT101	87-NF5-604-010		PT,HE EI85-58 7NF-5<74HR>
LED221	87-A40-263-080		LED,SLH-56PCT31 GRN	△ PT101	87-NF5-603-010		PT,E EI85-58 7NF-5<70EZ,K,V>
LED223	87-A40-265-010		LED,SLH-56PCL GRN	△ SW101	87-A90-165-010		SW,SL 1-2-3 SWS2301<74HR>
LED234	87-A40-265-010		LED,SLH-56PCL GRN	△ T1	87-A60-317-010		TERMINAL, 1P MSC
LED235	87-A40-267-010		LED,SLH-56VCL RED	△ T2	87-A60-317-010		TERMINAL, 1P MSC
LED236	87-A40-267-010		LED,SLH-56VCL RED				
LED237	87-A40-265-010		LED,SLH-56PCL GRN	AUDIO C.B			
LED238	87-A40-265-010		LED,SLH-56PCL GRN	C403	87-010-992-080		C-CAP,S 0.047-25 K B MK212
S301	87-A90-095-080		SW,TACT EVQ11G04M	C404	87-010-992-080		C-CAP,S 0.047-25 K B MK212
S302	87-A90-095-080		SW,TACT EVQ11G04M	C405	87-010-401-040		CAP,E 1-50 M SME
S303	87-A90-095-080		SW,TACT EVQ11G04M	C406	87-010-401-040		CAP,E 1-50 M SME
S304	87-A90-095-080		SW,TACT EVQ11G04M	C407	87-010-184-080		C-CAP,S 3300P-50 K B
S305	87-A90-095-080		SW,TACT EVQ11G04M	C408	87-010-184-080		C-CAP,S 3300P-50 K B
S306	87-A90-095-080		SW,TACT EVQ11G04M	C409	87-010-592-080		C-CAP,S 0.022-16 K R
S307	87-A90-095-080		SW,TACT EVQ11G04M	C410	87-010-592-080		C-CAP,S 0.022-16 K R
S308	87-A90-095-080		SW,TACT EVQ11G04M	C411	87-016-463-080		C-CAP, 0.33-16 K B C3216
S314	87-A90-095-080		SW,TACT EVQ11G04M	C412	87-016-463-080		C-CAP, 0.33-16 K B C3216
S315	87-A90-095-080		SW,TACT EVQ11G04M	C413	87-010-196-080		C-CAP,S 0.1-25 Z F C2012
S316	87-A90-095-080		SW,TACT EVQ11G04M	C414	87-010-374-040		CAP,E 47-10 SME
S317	87-A90-095-080		SW,TACT EVQ11G04M	C415	87-010-374-040		CAP,E 47-10 SME
S318	87-A90-095-080		SW,TACT EVQ11G04M	C416	87-010-196-080		C-CAP,S 0.1-25 Z F C2012
S319	87-A90-095-080		SW,TACT EVQ11G04M	C417	87-016-081-080		C-CAP,S 0.1-16 K R
S320	87-A90-095-080		SW,TACT EVQ11G04M	C418	87-010-405-040		CAP,E 10-50 M SME
S322	87-A90-095-080		SW,TACT EVQ11G04M	C501	87-010-319-080		C-CAP,S 56P-50 J CH
S328	87-A90-095-080		SW,TACT EVQ11G04M	C502	87-010-319-080		C-CAP,S 56P-50 J CH
S329	87-A90-095-080		SW,TACT EVQ11G04M	C503	87-012-393-080		C-CAP,S 0.22-16 K W5R CM/CB
S330	87-A90-095-080		SW,TACT EVQ11G04M	C504	87-010-197-080		C-CAP,S 0.01-25 K B
S331	87-A90-095-080		SW,TACT EVQ11G04M	C505	87-010-180-080		C-CAP,S 1500P-50 K B
S332	87-A90-095-080		SW,TACT EVQ11G04M	C506	87-010-213-080		C-CAP,S 0.015-25 K B
S336	87-A90-095-080		SW,TACT EVQ11G04M	C507	87-010-213-080		C-CAP,S 0.015-25 K B
S339	87-A90-095-080		SW,TACT EVQ11G04M<70EZ>	C508	87-010-197-080		C-CAP,S 0.01-25 K B
S340	87-A90-095-080		SW,TACT EVQ11G04M<70EZ>	C509	87-010-181-080		C-CAP,S 1800P-50 K B
S341	87-A90-095-080		SW,TACT EVQ11G04M<70EZ>	C510	87-010-196-080		C-CAP,S 0.1-25 Z F C2012
X101	87-A70-070-080		VIB,CER 5.76MHZ CRHF	C511	87-010-196-080		C-CAP,S 0.1-25 Z F C2012
CD KEY C.B				C512	87-010-374-040		CAP,E 47-10 SME
S309	87-A90-095-080		SW,TACT EVQ11G04M	C513	87-010-404-040		CAP,E 4.7-50 SME
S310	87-A90-095-080		SW,TACT EVQ11G04M	C514	87-010-404-040		CAP,E 4.7-50 SME
S311	87-A90-095-080		SW,TACT EVQ11G04M	C515	87-010-183-080		C-CAP,S 2700P-50 K B
S312	87-A90-095-080		SW,TACT EVQ11G04M	C516	87-010-183-080		C-CAP,S 2700P-50 K B
S313	87-A90-095-080		SW,TACT EVQ11G04M	C518	87-010-196-080		C-CAP,S 0.1-25 Z F C2012
FAN C.B				C519	87-010-263-040		CAP,E 100-10 M SME
C130	87-A90-463-010		FAN,2408 NL<74HR>	C533	87-010-545-080		CAP,E 0.22-50 M SME
	87-010-401-080		CAP,E 1-50 M SME<74HR>	C601	87-010-405-040		CAP,E 10-50 M SME
				C602	87-010-186-080		C-CAP,S 4700P-50 K B
				C603	87-010-405-040		CAP,E 10-50 M SME
				C604	87-010-382-040		CAP,E 22-25 SME
				C607	87-010-321-080		C-CAP,S 82P-50 J CH

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
C608	87-010-196-080		C-CAP,S 0.1-25 Z F C2012
C609	87-010-545-040		CAP,E 0.22-50 M SME
C611	87-010-177-080		C-CAP,S 820P-50 J SL
C614	87-010-248-040		CAP,E 220-10 M SME
L501	87-005-212-080		COIL,220UH K EL0606

RE C.B

C101	87-010-198-080		C-CAP,S 0.022-25 K B
C102	87-010-198-080		C-CAP,S 0.022-25 K B
S101	87-A90-535-010		SW,RTRY EC16B24304-W0 NON
S326	87-A90-095-080		SW,TACT EVQ11G04M
S327	87-A90-095-080		SW,TACT EVQ11G04M

DECK C.B

W001	82-ZM3-601-019		RBN,CORD,4P-75
SFR1	87-024-581-019		SFR,3.3K DIA 6H
SOL1	82-ZM1-618-010		SOL ASSY, 27
SOL2	82-ZM1-618-010		SOL ASSY, 27
SW1	87-A90-248-019		SW,MICRO ESE11SH2CXQ

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
SW2	87-A90-248-019		SW,MICRO ESE11SH2CXQ
SW3	87-A90-248-019		SW,MICRO ESE11SH2CXQ
SW4	87-036-110-010		SW,MICRO SPPB62
SW5	87-036-110-010		SW,MICRO SPPB62
SW6	87-036-110-010		SW,MICRO SPPB62

SW8	87-A90-248-019		SW,MICRO ESE11SH2CXQ
SW9	87-036-110-010		SW,MICRO SPPB62
CON502	87-099-756-019		CONN, 15P 9604 S F

HEAD-1 C.B

85-ZM3-602-010		PWB,FLEX A
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HEAD-2 C.B

85-ZM3-602-010		PWB,FLEX A
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TRANSISTOR ILLUSTRATION



E C B

KTA1266GR
KTC3198GR



E C B

CSD1489B
CSB1058B



E B C

C2N5401



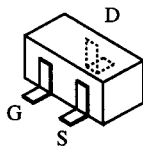
B C E

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FN1016
FP1016



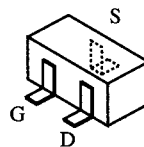
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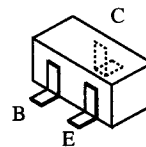
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2SK2158



D

2SK543-TB(4/5)



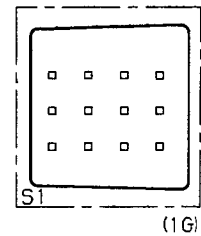
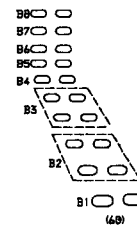
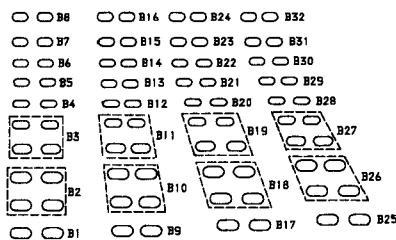
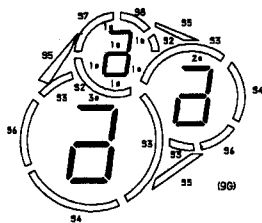
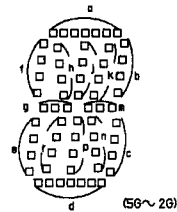
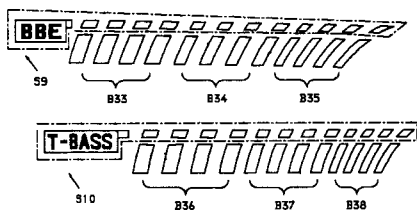
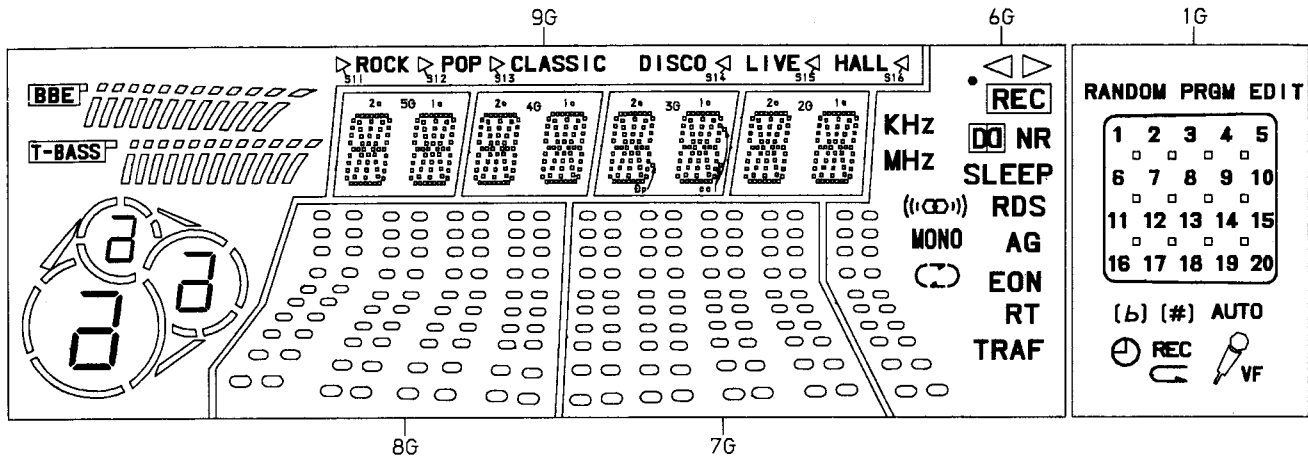
E

2SA1235F RN1404
2SC2714 RT1N141C
2SC3052F RT1N144C
CMBT5551 RT1P141C
CSA1362GR RT1P144C
CSD1306E

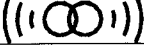
FL GRID ASSIGNMENT & ANODE CONNECTION

FL, BJ530GK

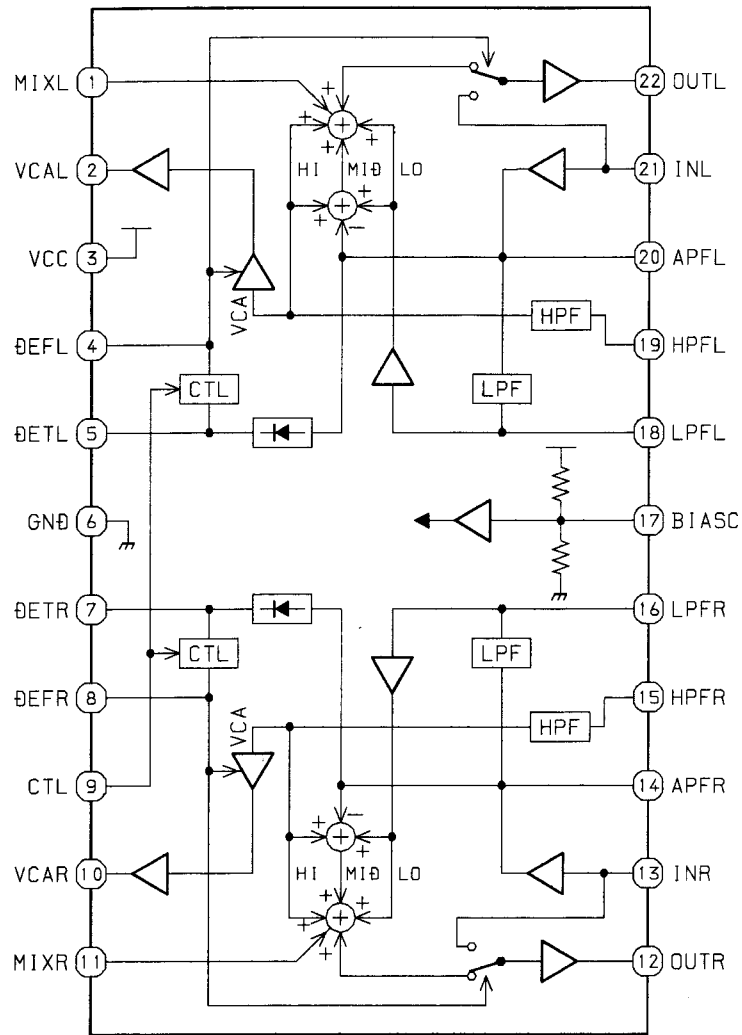
GRID ASSIGNMENT



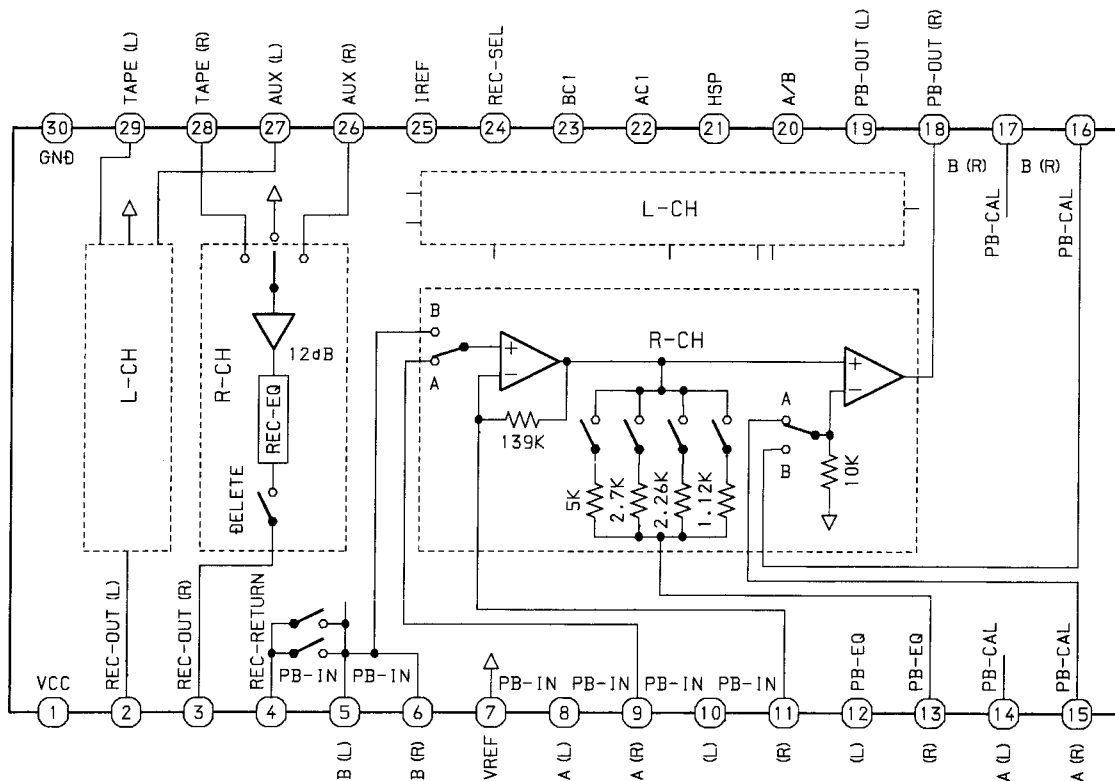
ANODE CONNECTION

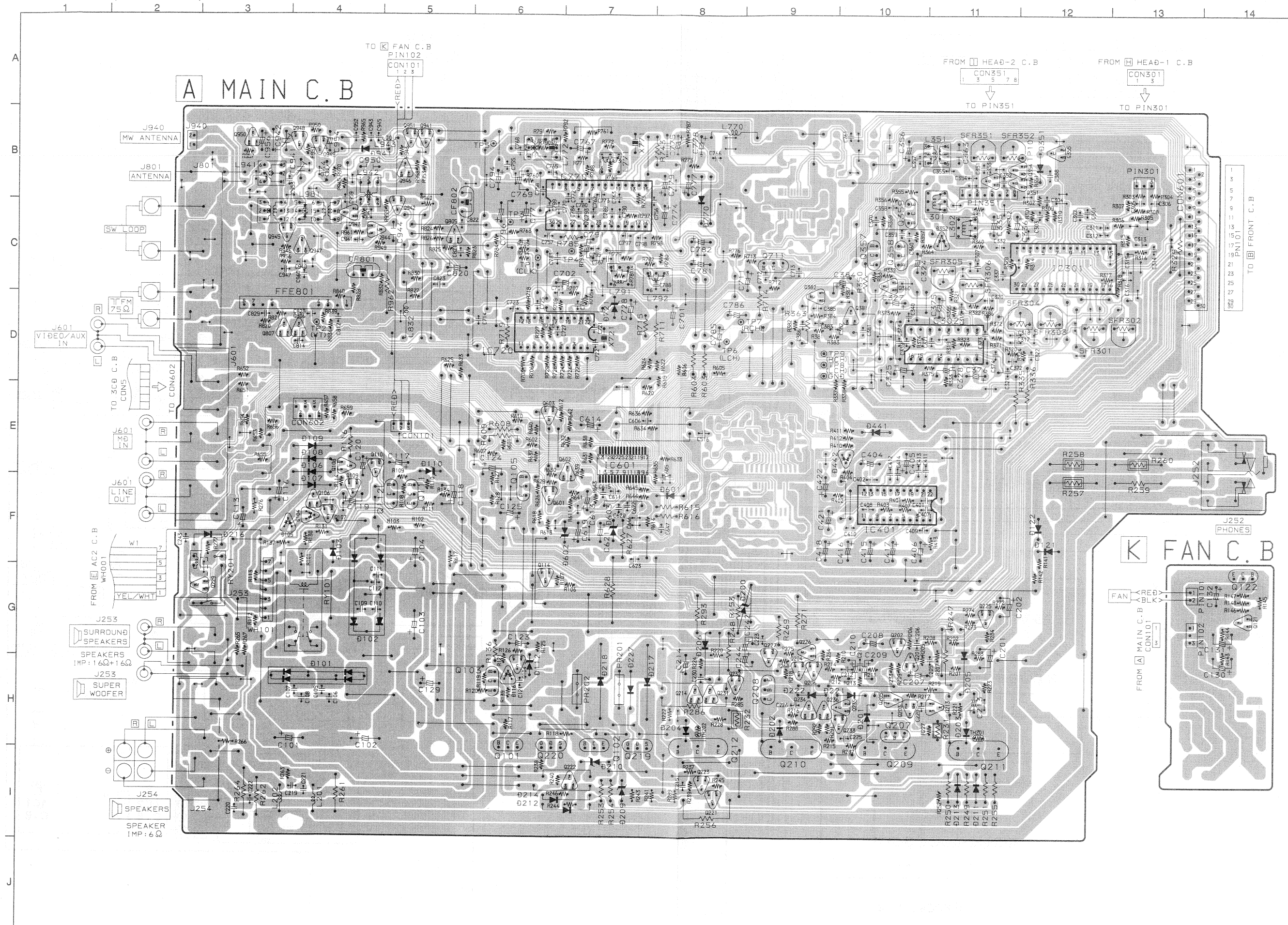
	9G	8G, 7G	6G	5G, 4G	3G	2G	1G
P1	S8	B32		-	col (down)	-	RANDOM
P2	S2	B24		1d	1d	1d	-
P3	1b	B16	SLEEP	1n	1n	1n	PRGM
P4	1c	B8	B8	1p	1p	1p	EDIT
P5	1e	B31		1r	1r	1r	1
P6	1a, 1d, 1g	B23	REC	1e	1e	1e	2
P7	2b	B15	KHz	1c	1c	1c	3
P8	2c	B7	B7	1g	1g	1g	4
P9	2e	B30	MHz	1m	1m	1m	5
P10	2a, 2d, 2g	B22	-	1f	1f	1f	6
P11	3b	B14	DO NR	1b	1b	1b	7
P12	3c	B6	B6	1k	1k	1k	8
P13	3e	B29	RDS	1j	1j	1j	9
P14	3a, 3d, 3g	B21	-	1h	1h	1h	10
P15	S3	B13	-	1a	1a	1a	11
P16	S5	B5	B5	-	col (up)	-	12
P17	S7	B28	-	-	dp	-	13
P18	S4	B20	-	2d	2d	2d	14
P19	S6	B12	-	2n	2n	2n	15
P20	S16	B4	B4	2p	2p	2p	16
P21	S15	B27	AG	2r	2r	2r	17
P22	S14	B19		2e	2e	2e	18
P23	S13	B11	EON	2c	2c	2c	19
P24	S12	B3	B3	2g	2g	2g	20
P25	S11	B26	RT	2m	2m	2m	AUTO
P26	B36	B18	MONO	2f	2f	2f	 VF
P27	B37	B10	TRAF	2b	2b	2b	
P28	B38	B2	B2	2k	2k	2k	REC
P29	B33	B25	)	2j	2j	2j	
P30	B34	B17		2h	2h	2h	(#)
P31	B35	B9	(	2a	2a	2a	((b))
P32	ROCK POP CLASSIC S10	B1	B1	-	-	-	S1
P33	DISCO LIVE HALL	-	-	-	-	-	-
P34	S9	-	-	-	-	-	-
P35	-	-	-	-	-	-	b #

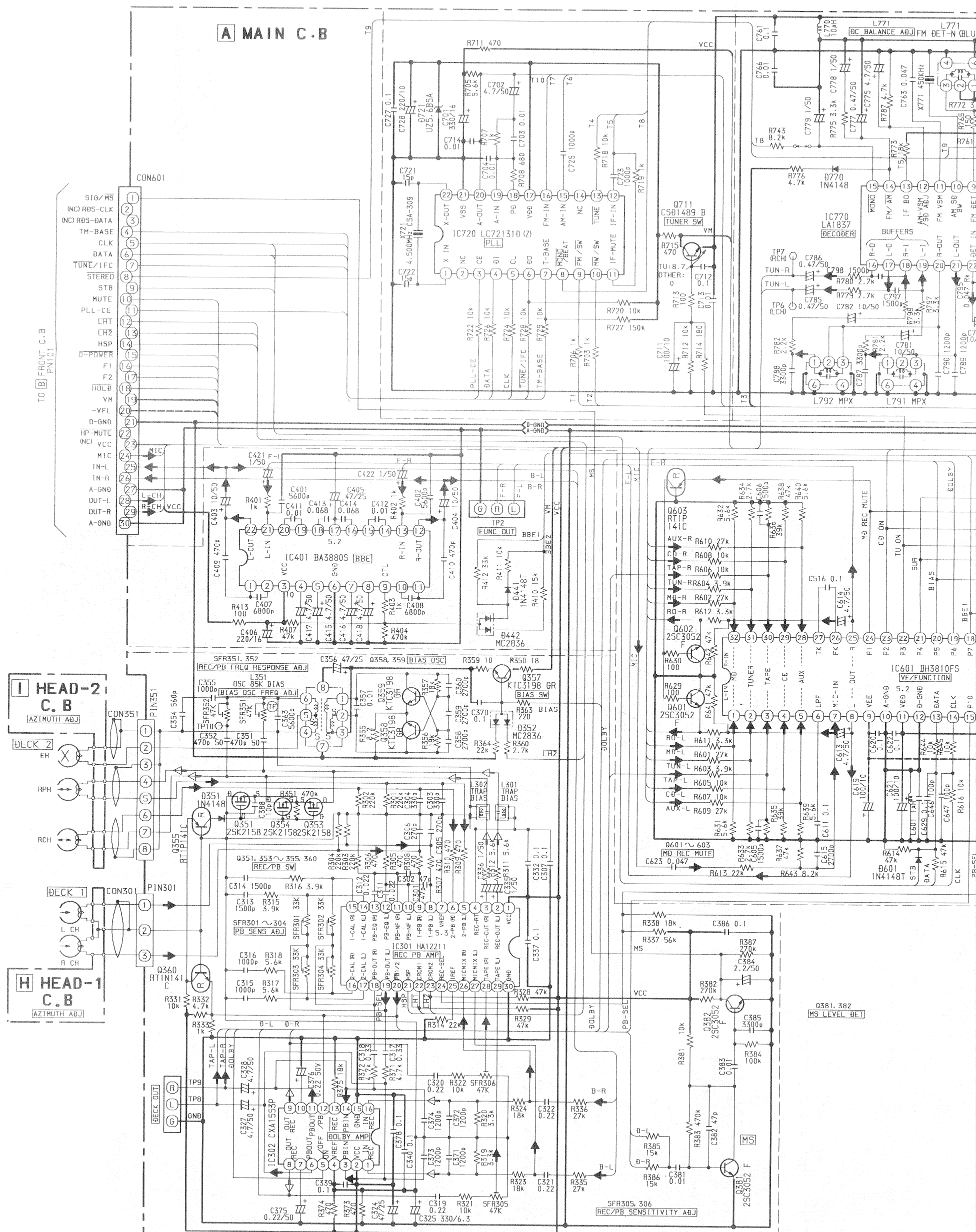
IC BLOCK DIAGRAM – 1 IC, BA3880S

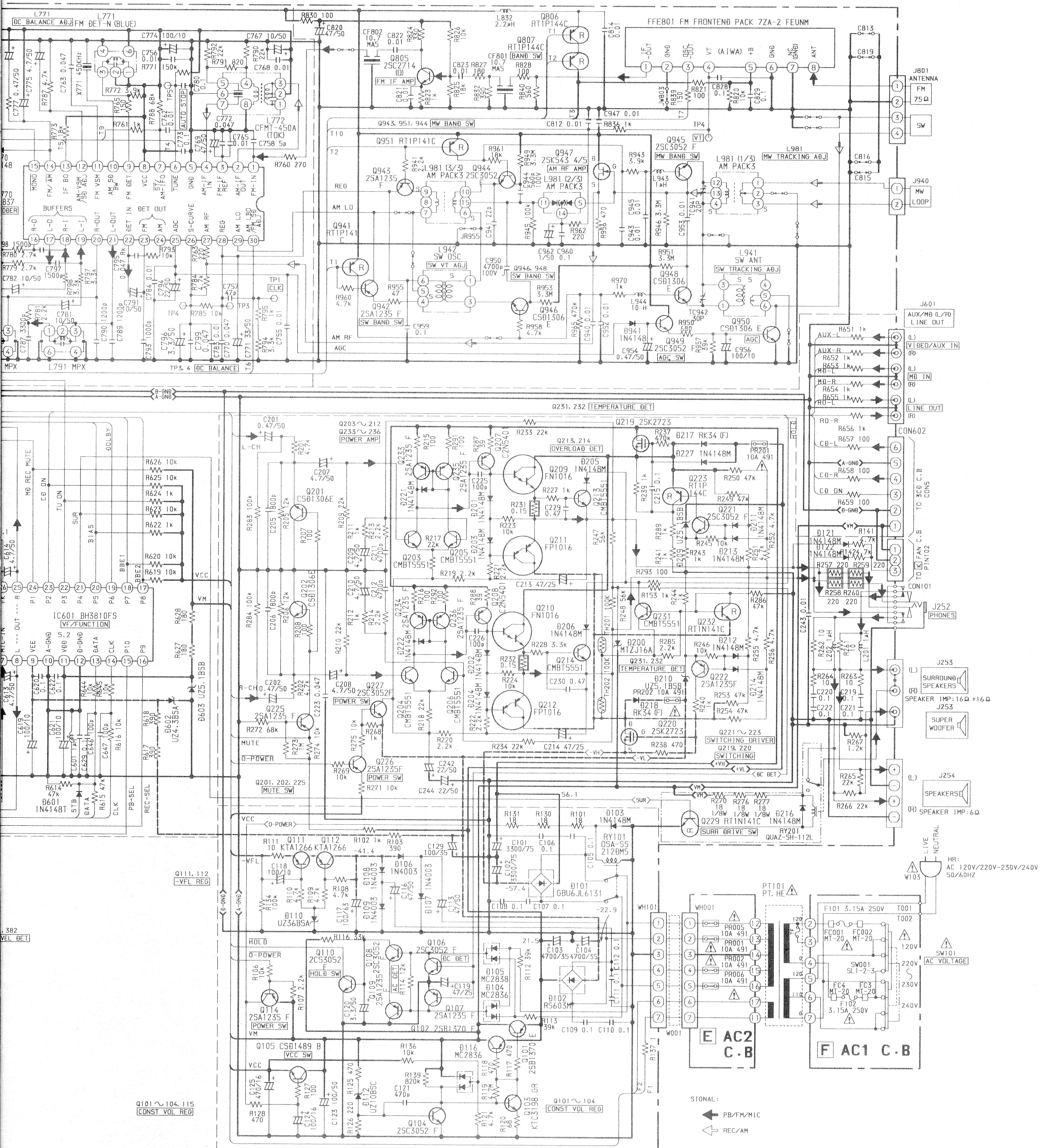


IC, HA12211NT

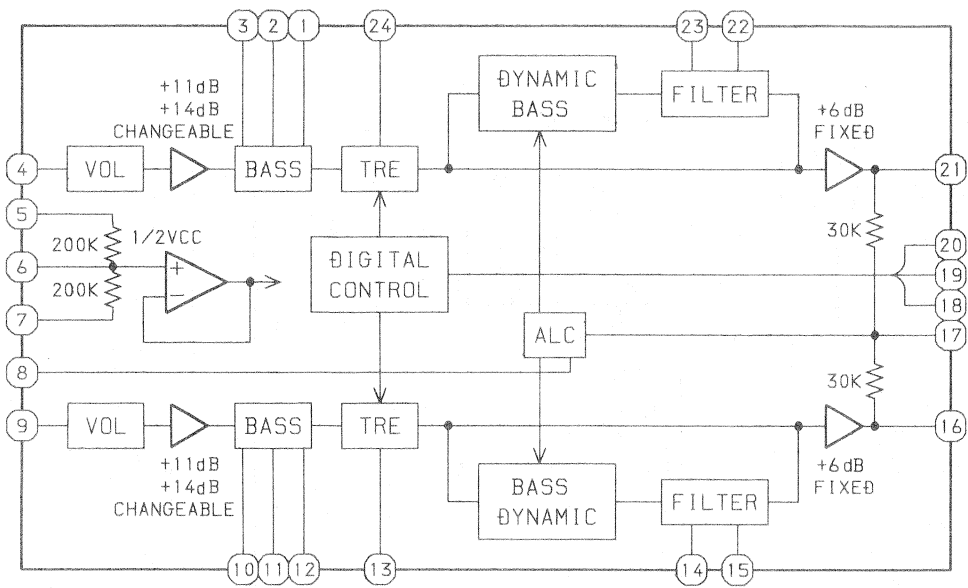




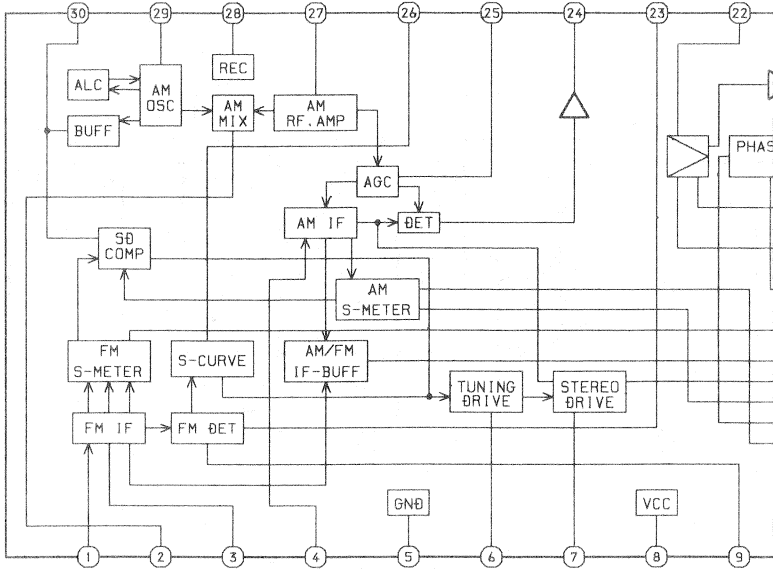




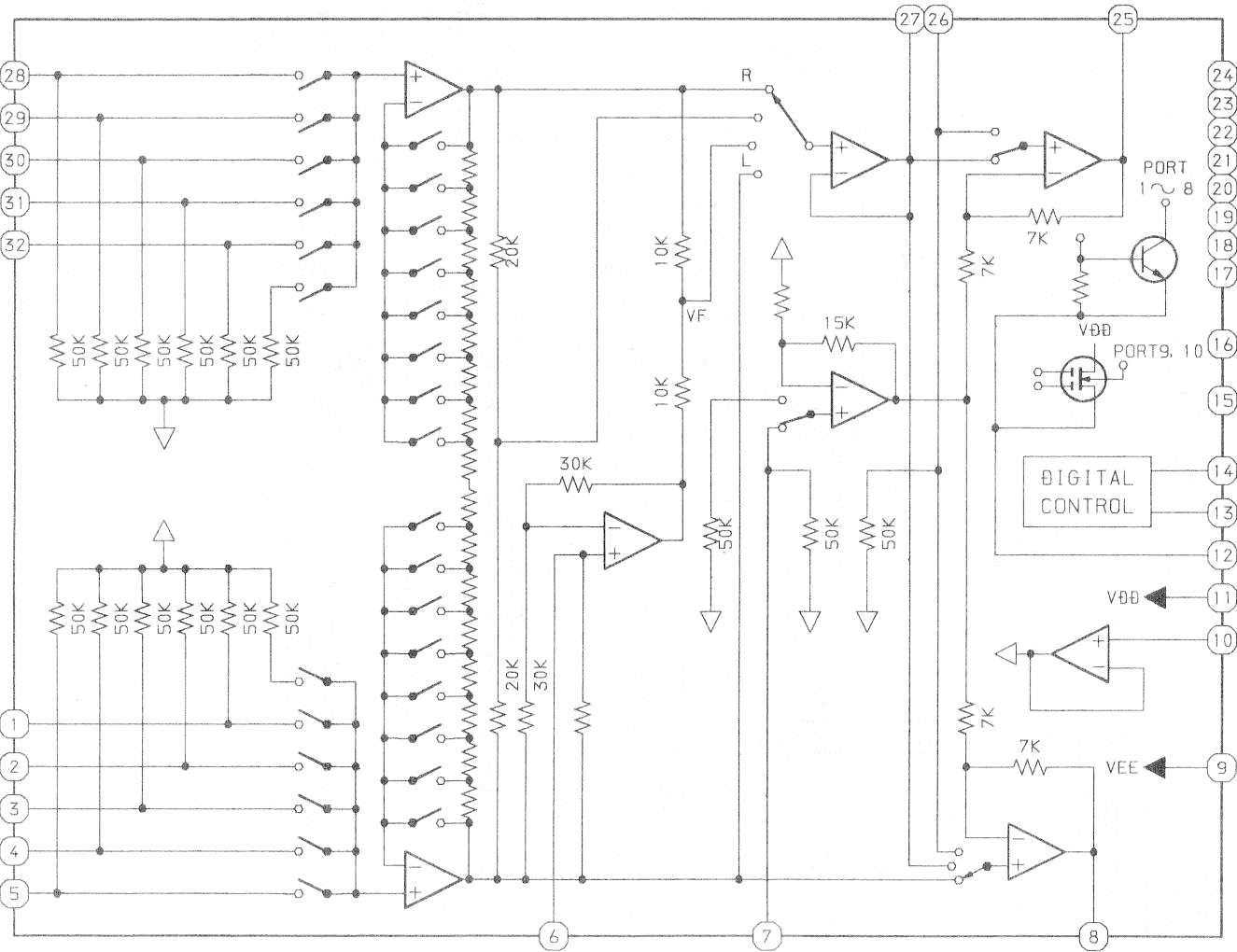
IC BLOCK DIAGRAM – 2
IC, BH3864F



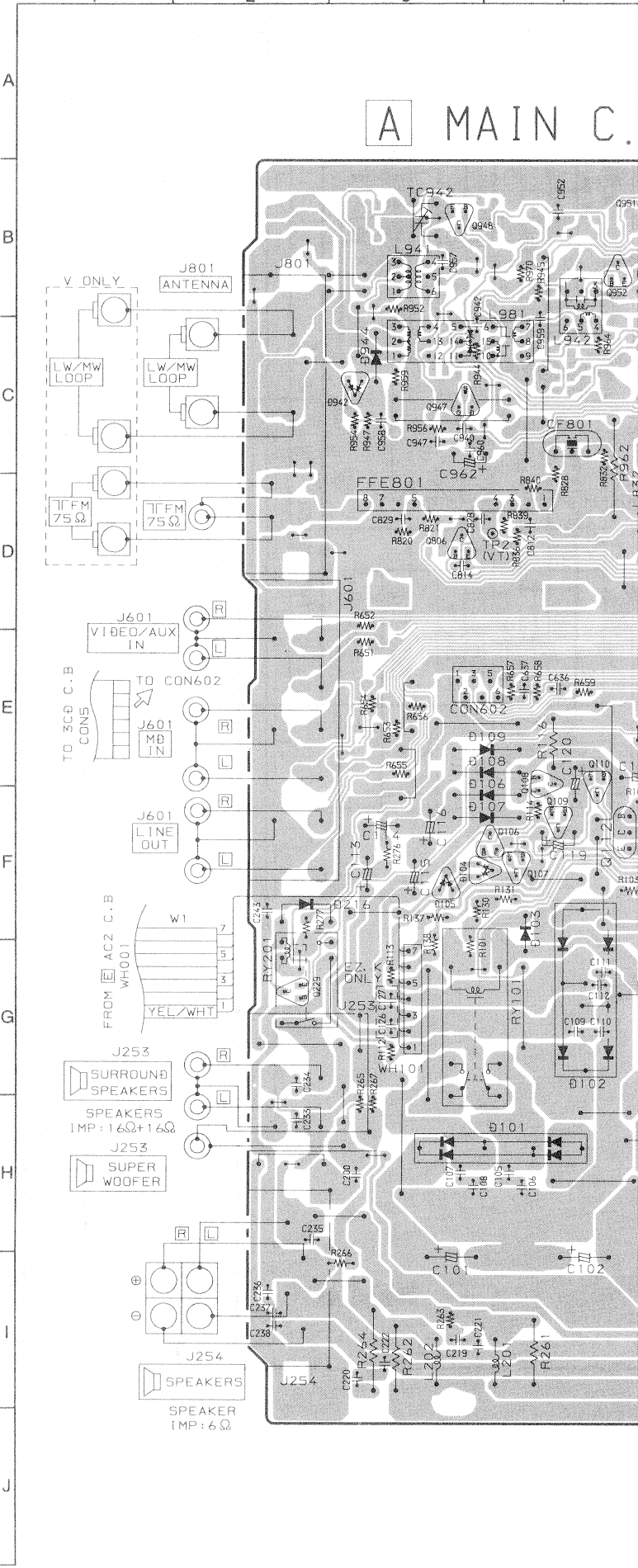
IC, LA1837



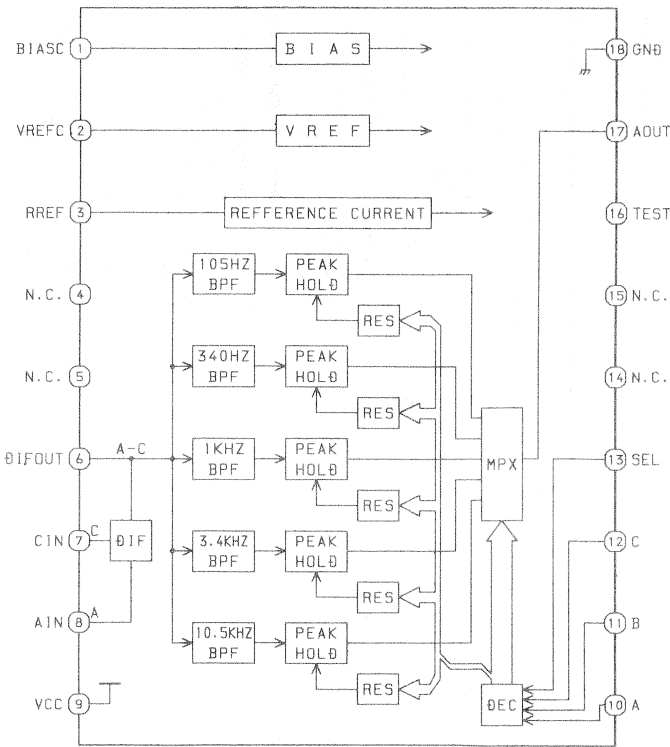
IC, BH3810FS

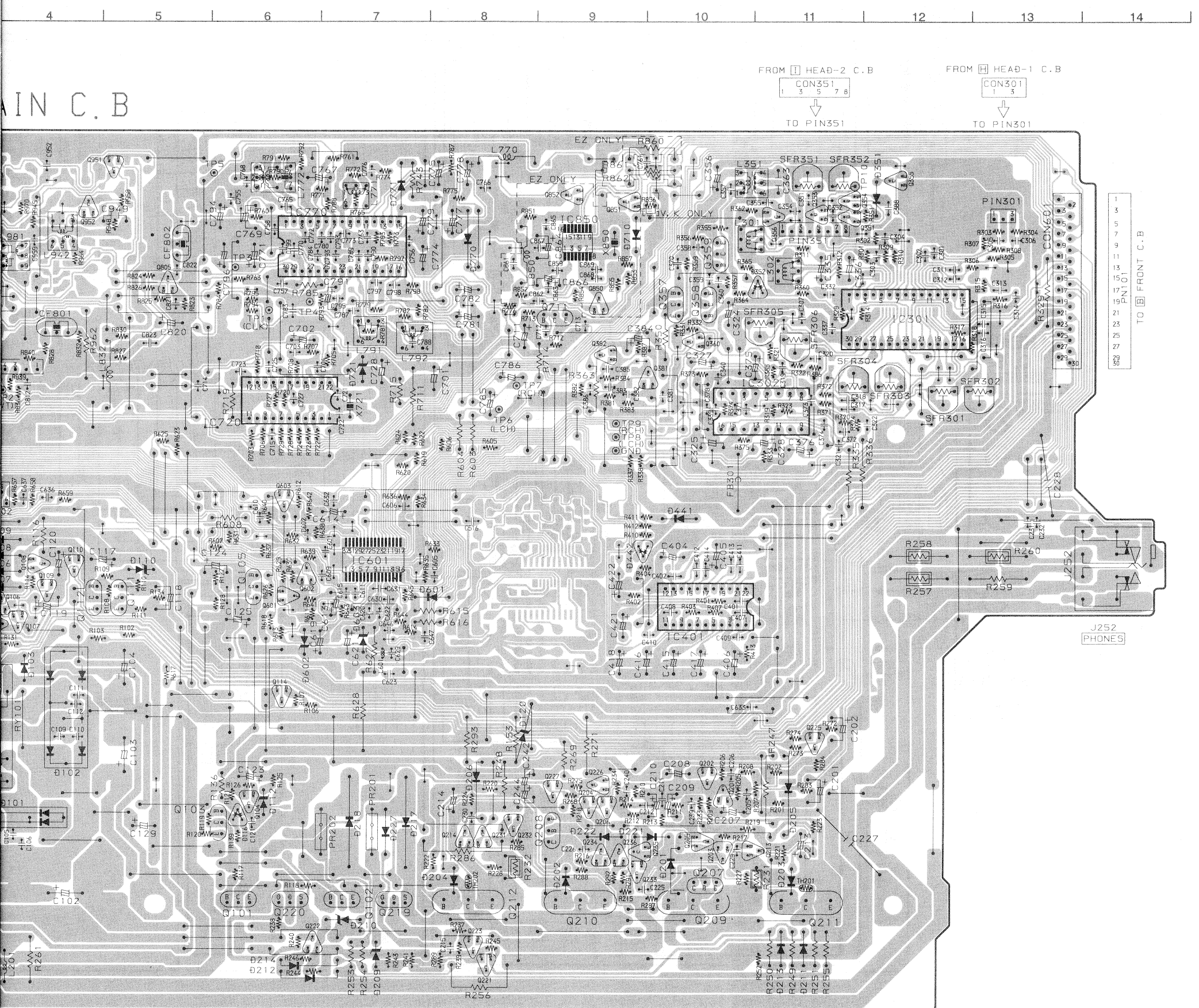
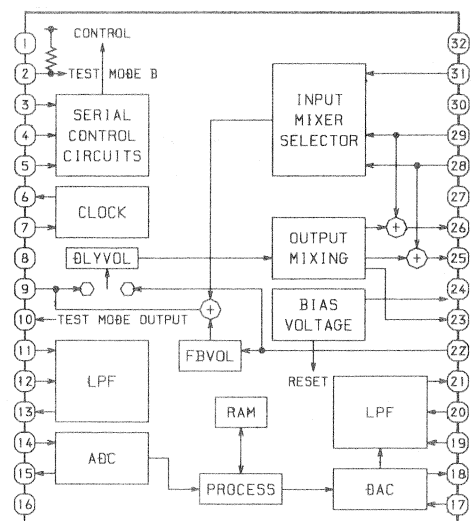
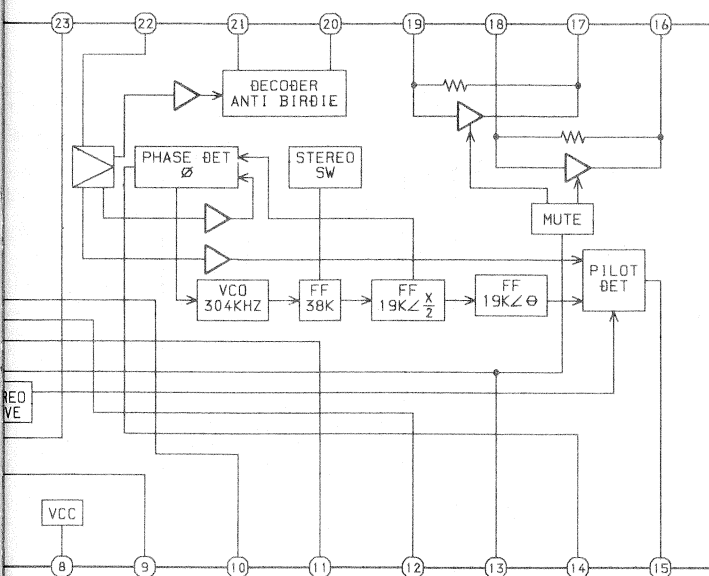


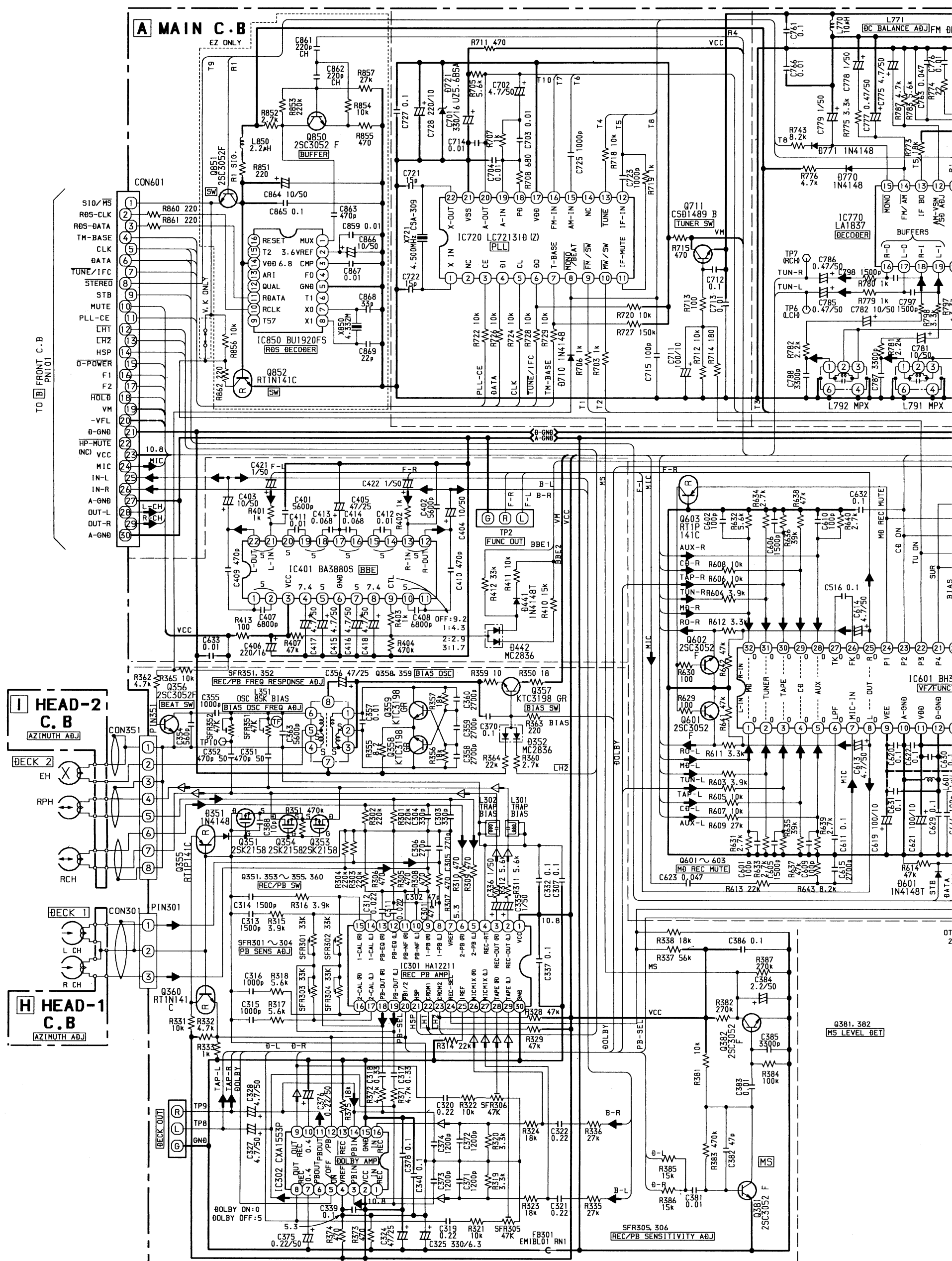
WIRING – 2 (MAIN : EZ, K, V)

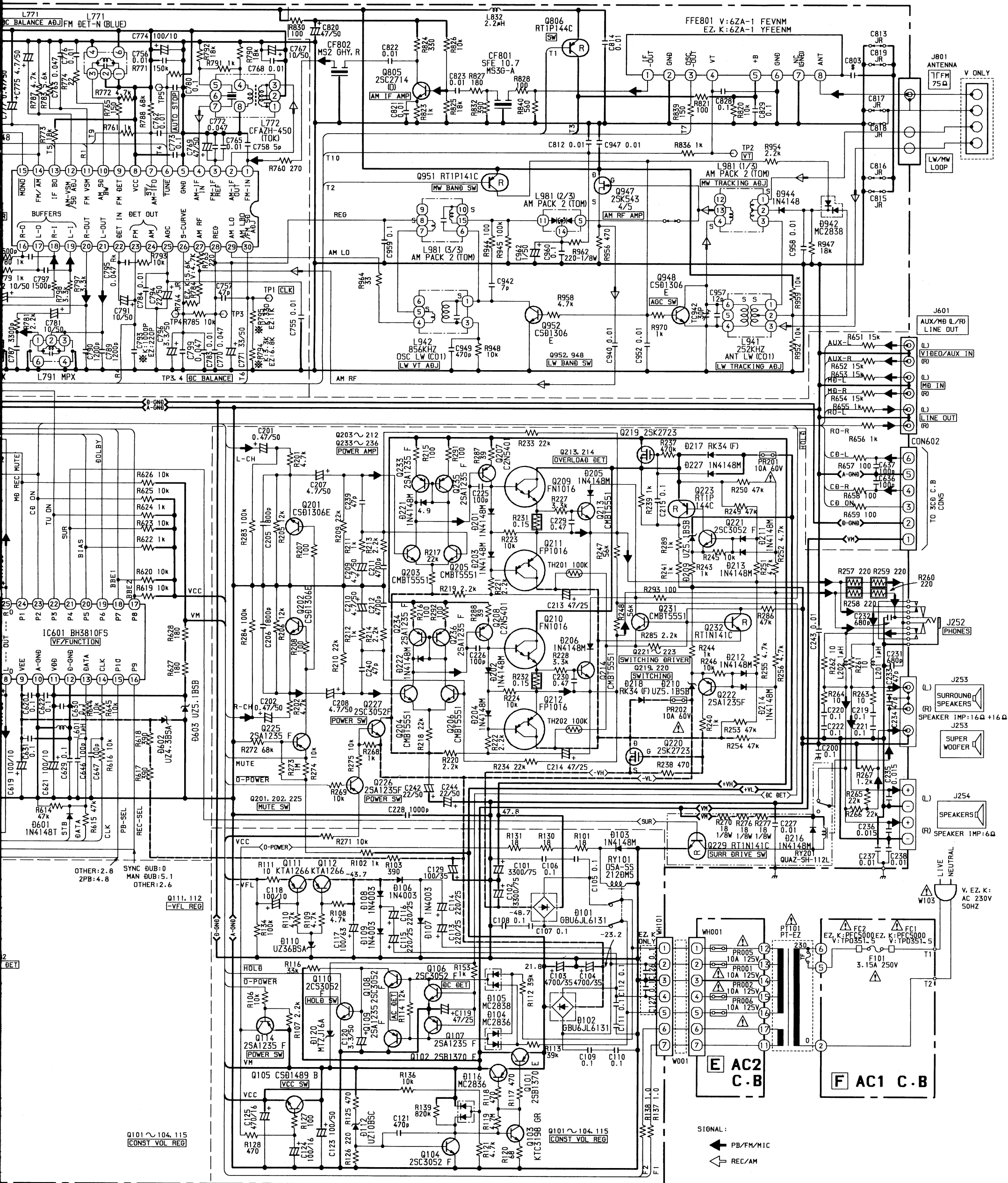


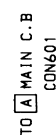
IC, BA3835S

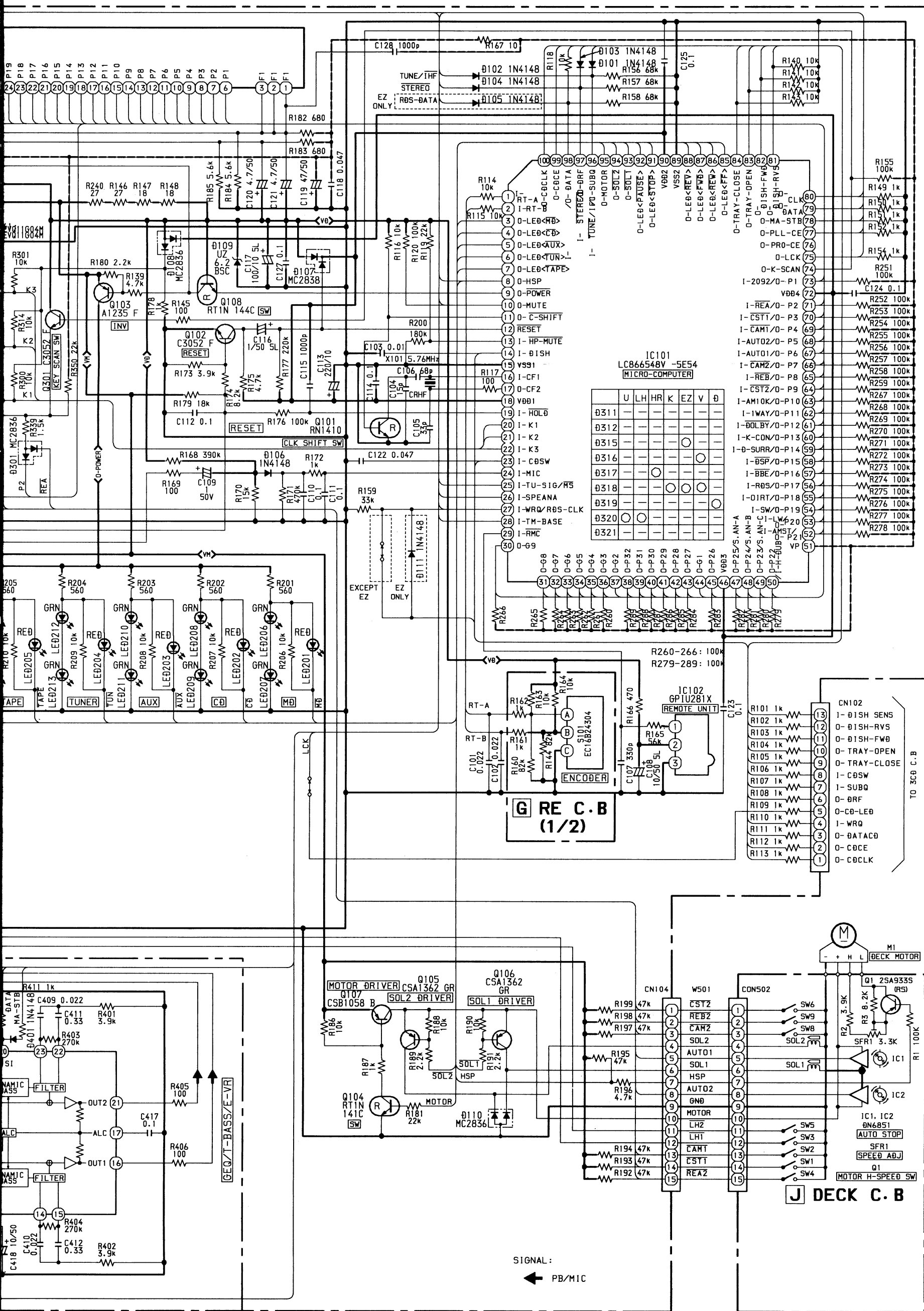


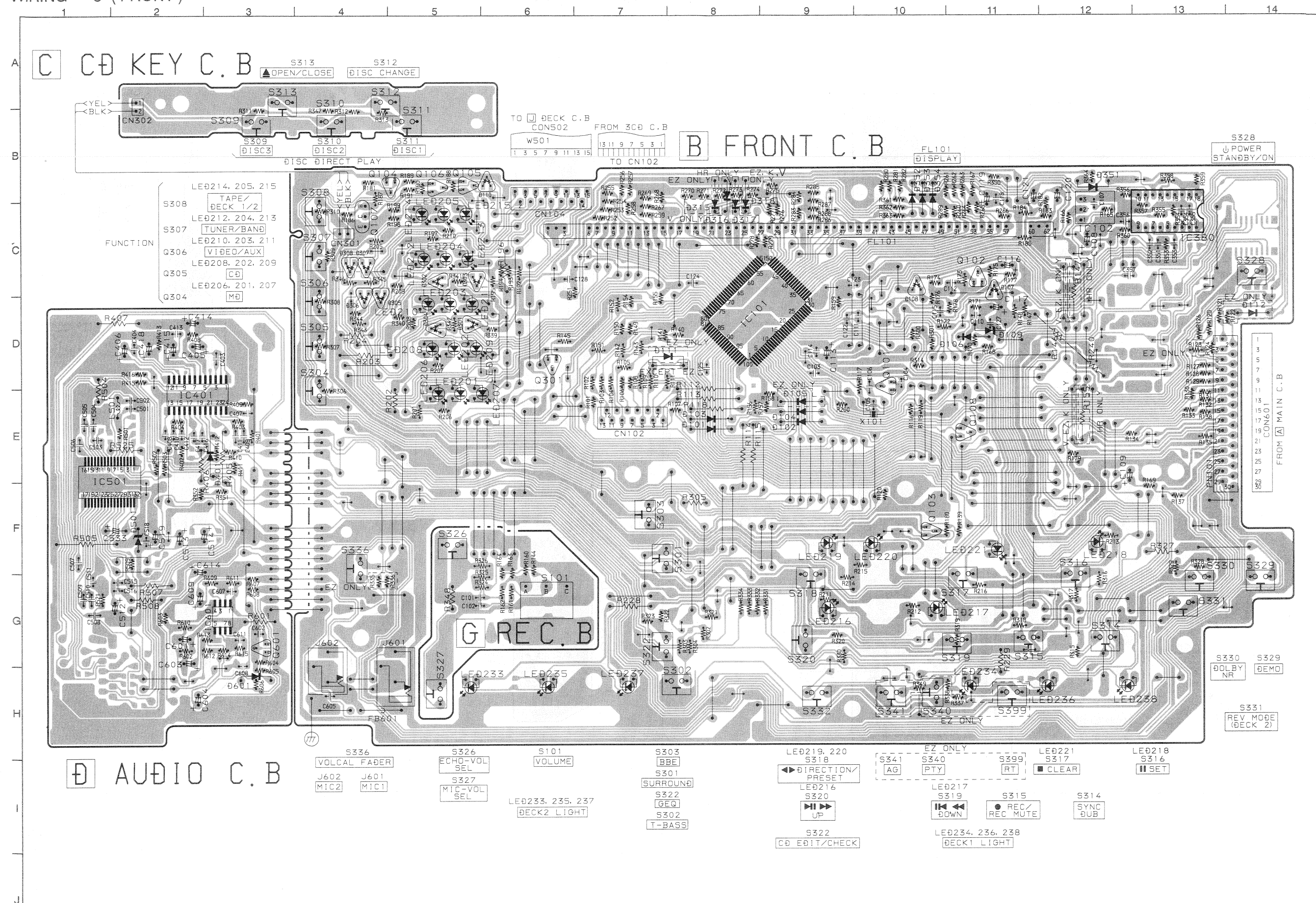




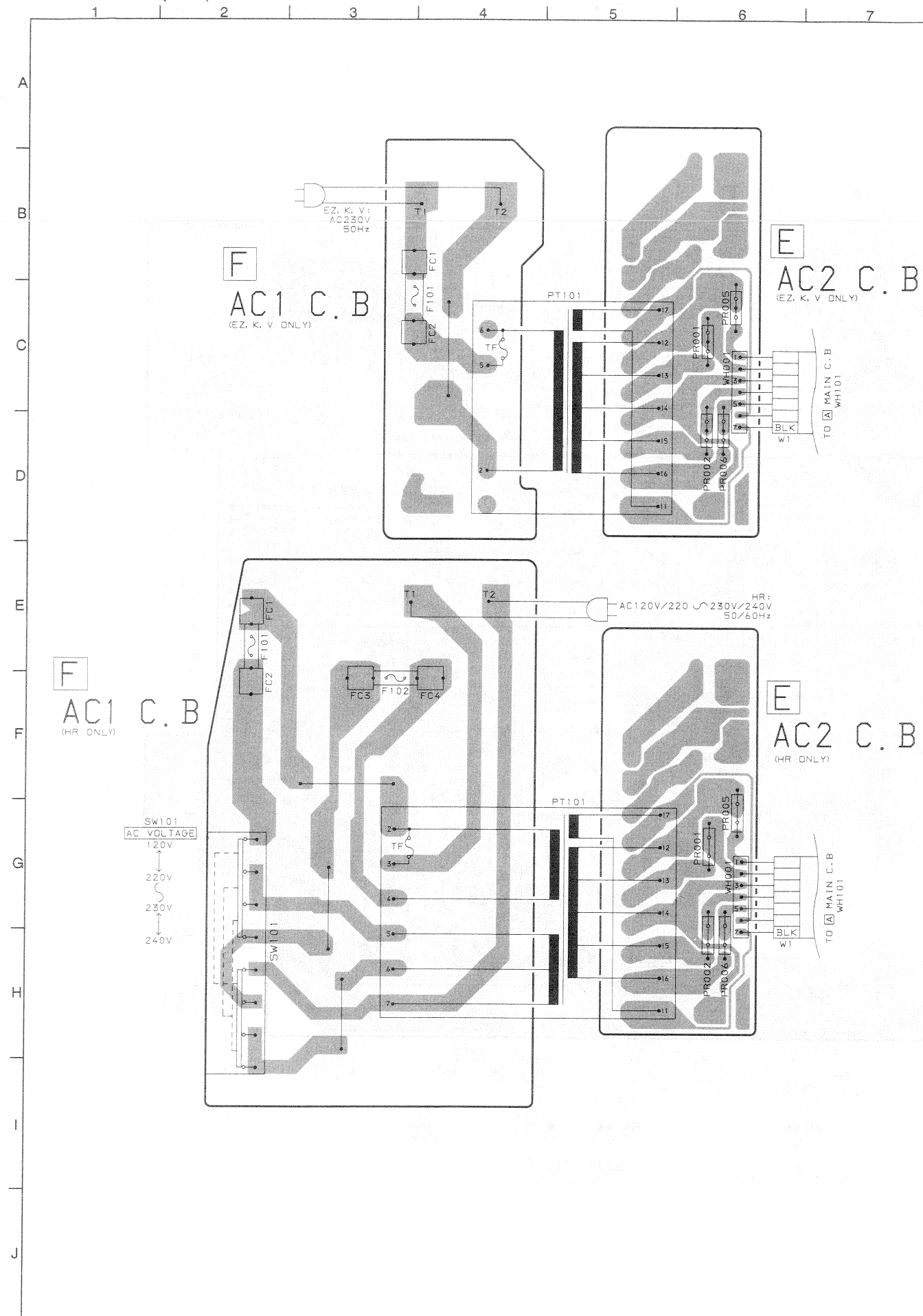




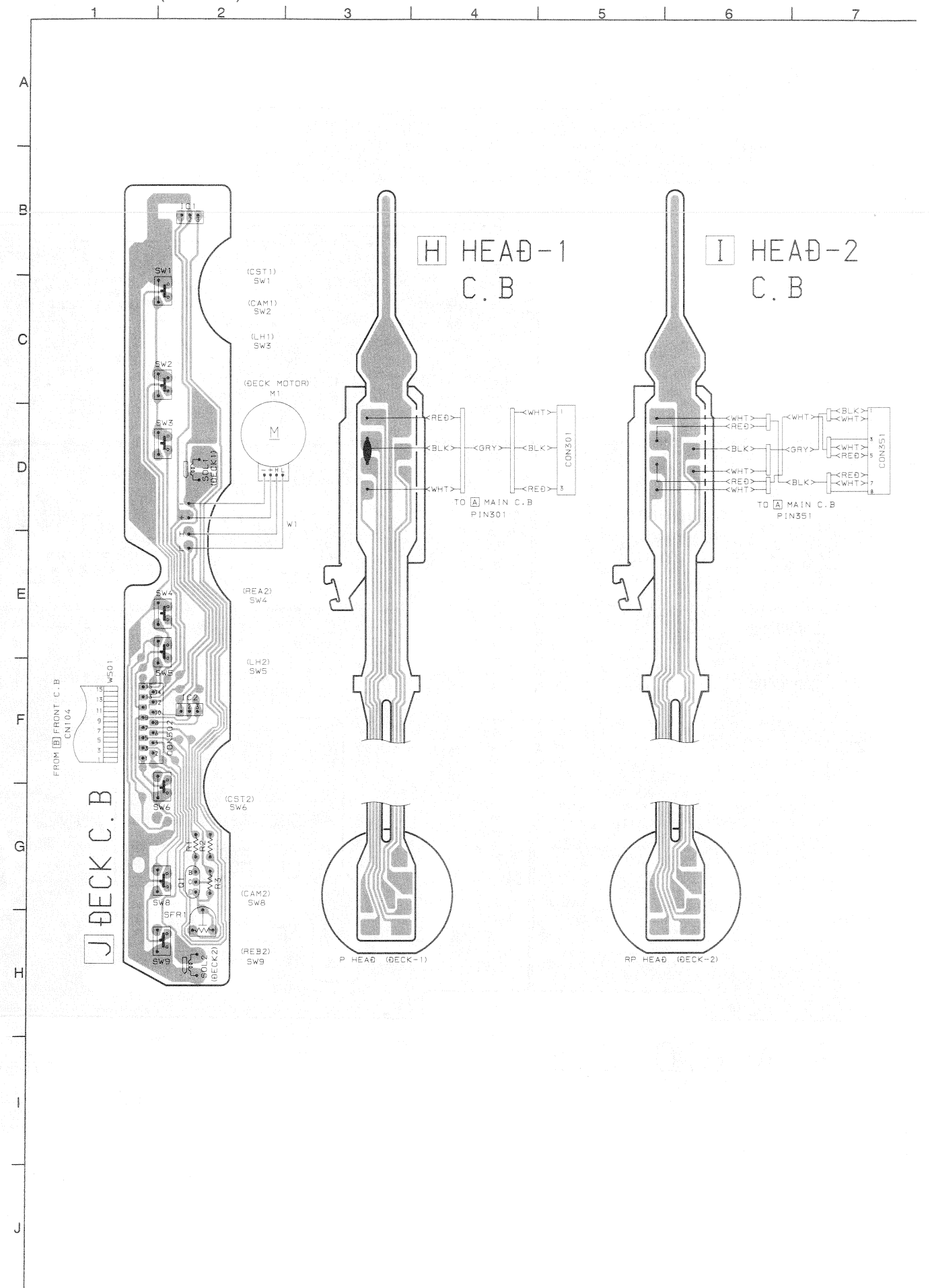




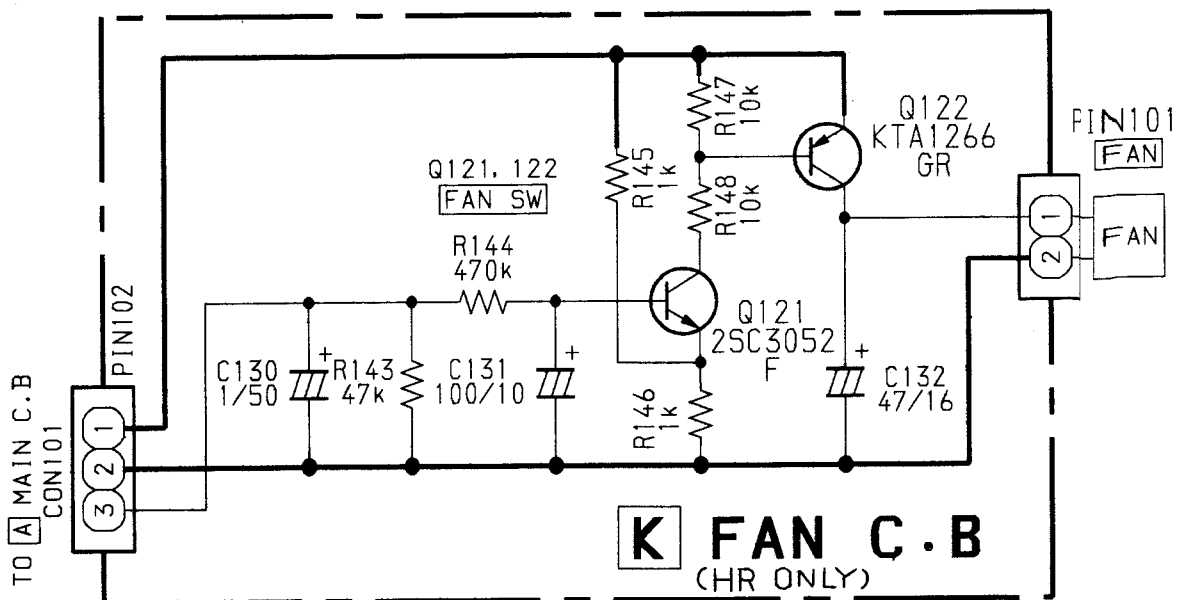
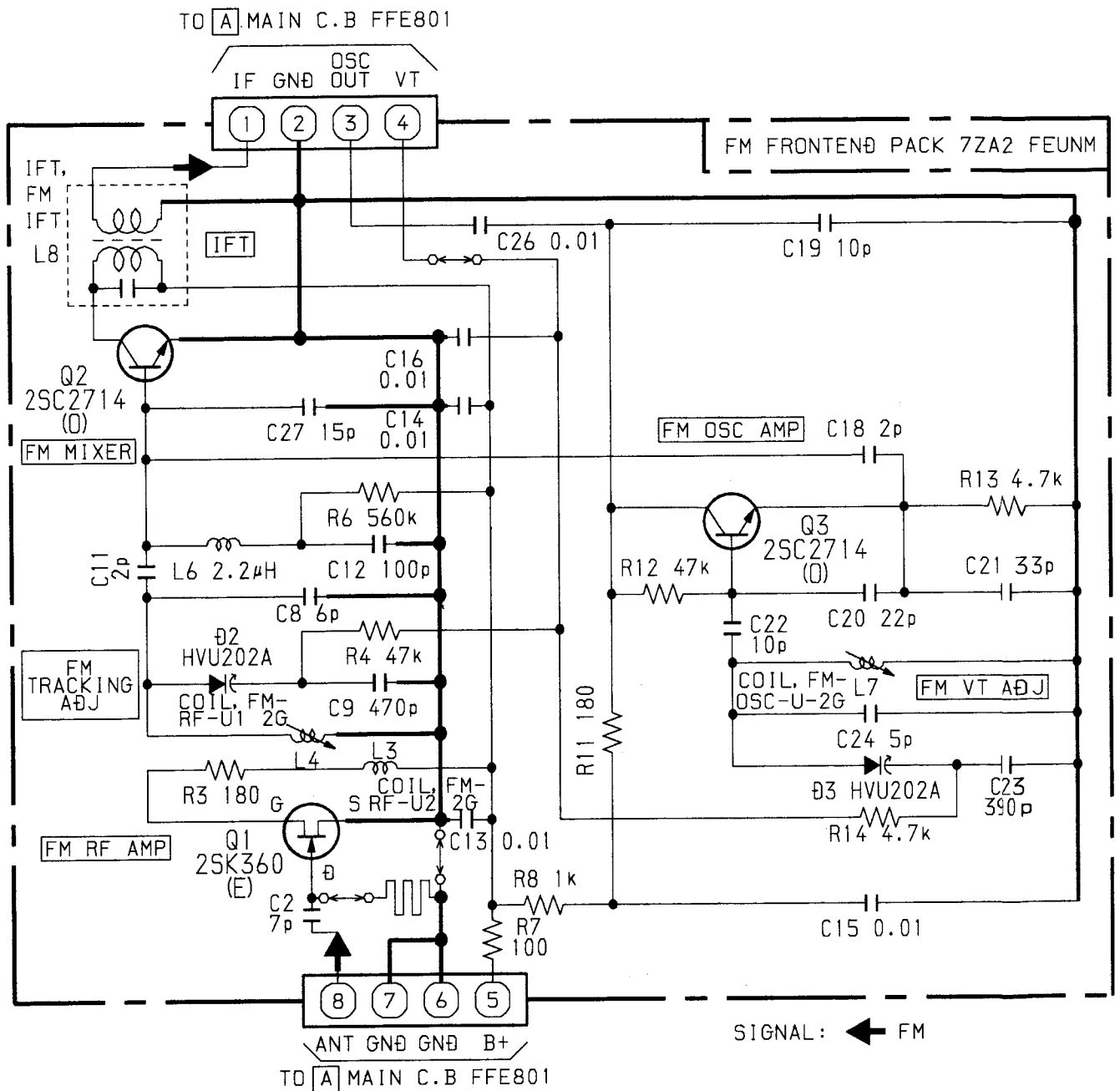
WIRING - 4 (PT)



WIRING - 5 (DECK)

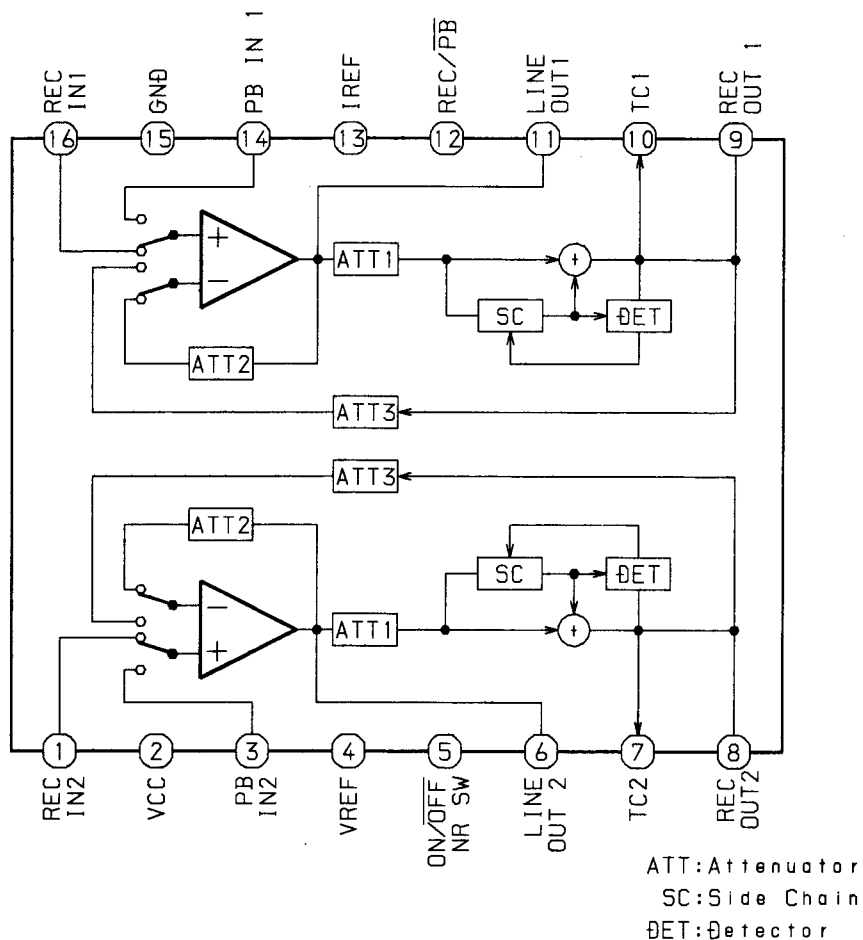


SCHEMATIC DIAGRAM - 4 (TUNER FRONT END / FAN)

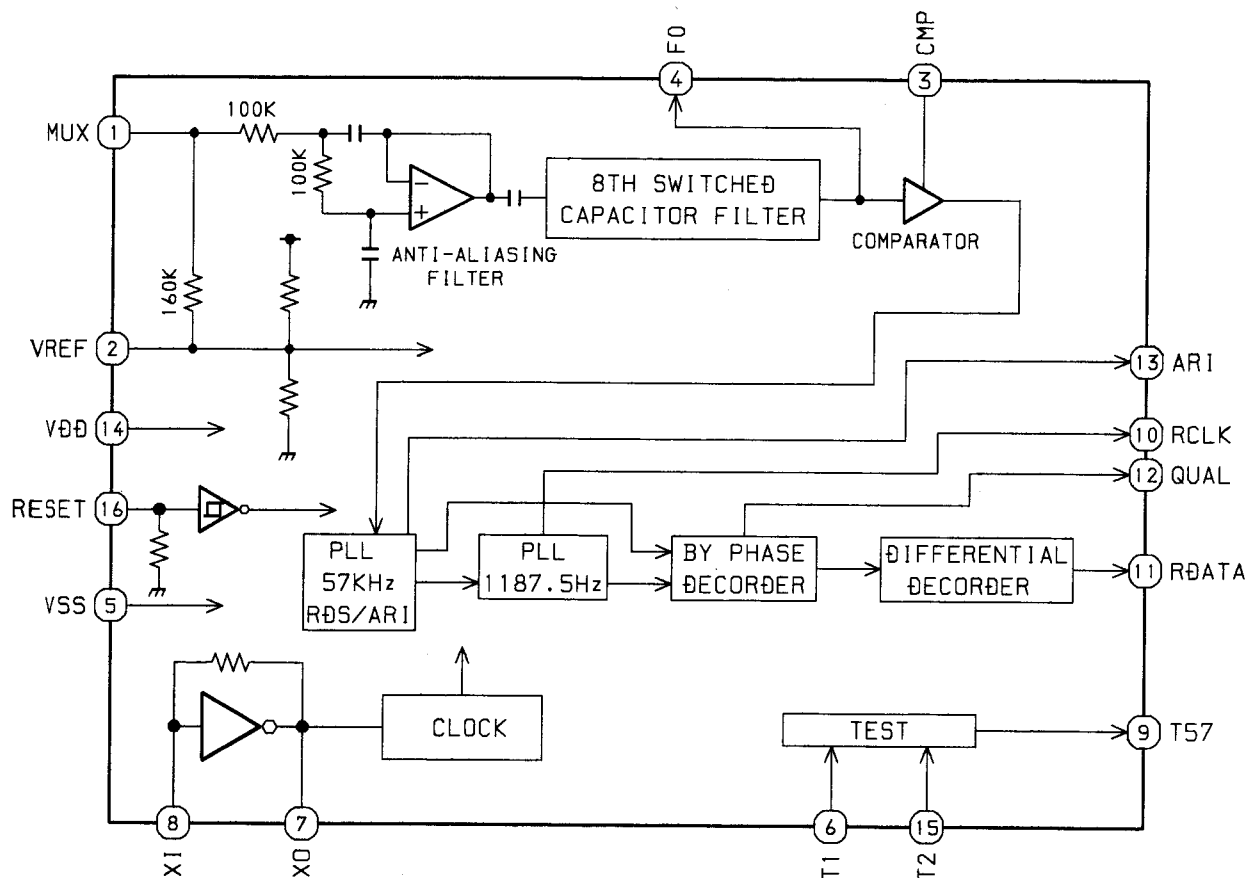


IC BLOCK DIAGRAM – 3

IC, CXA1553P



IC, BU1920FS



IC DESCRIPTION

IC, LC866548V-5E54

Pin No.	Pin Name	I/O	Description
1	RT-A	I	Rotary encoder A input.
2	RT-B	I	Rotary encoder B input.
3	$\overline{\text{LED-MD}}$	O	"MD" LED $\overline{\text{ON/OFF}}$ output.
4	$\overline{\text{LED-CD}}$	O	"CD " LED $\overline{\text{ON/OFF}}$ output.
5	$\overline{\text{LED-AUX}}$	O	"AUX" LED $\overline{\text{ON/OFF}}$ output.
6	$\overline{\text{LED-TUNER}}$	O	"TUNER" LED $\overline{\text{ON/OFF}}$ output.
7	$\overline{\text{LED-TAPE}}$	O	"TAPE" LED $\overline{\text{ON/OFF}}$ output.
8	HSP	O	Tape deck motor high speed $\overline{\text{ON/OFF}}$ output.
9	$\overline{\text{O-POWER}}$	O	System power supply $\overline{\text{ON/OFF}}$ output.
10	O-MUTE	O	System mute $\overline{\text{ON/OFF}}$ output.
11	$\overline{\text{O-CLK-SHIFT}}$	O	U-COM clock shift output.
12	$\overline{\text{RESET}}$	I	Reset input.
13	$\overline{\text{I-HP-MUTE}}$	–	Not connected.
14	I-DISH	I	CD turntable photo sensor A/D converter input.
15	VSS 1	–	GND.
16	CF 1	–	5.76MHz oscillator circuit.
17	CF 2	–	
18	VDD 1	–	Power supply input.
19	$\overline{\text{HOLD}}$	I	Power failure detected input "1" to stop clock and main memory.
20	KEY-1	I	KEY input.(A/D)
21	KEY-2	I	
22	KEY-3	I	
23	I-CD SW	I	CD mechanical switch A/D converter input.
24	I-MIC	I	Microphone input for AUTO VF display.
25	$\overline{\text{I-TU-SIG/MS}}$	I	Tuner signal and deck music sensor signal input.
26	I-SPEANA	I	A/D input for spectrum analyzer display.
27	I-WRQ/RDS-CLK	I	CD WRQ input . TUNER RDS CLOCK input.
28	I-TM-BASE	I	REFERENCE CLOCK input for timer watch.
29	$\overline{\text{I-RMC}}$	I	System remote control signal input.
30~37	G9~G2	O	FL GRID output G2~G9.
38~43	P32~P27	O	FL SEGMENT output P27~P32.
44	G1	O	FL grid output G1.
45	P26	–	FL SEGMENT output P26.
46	VDD3	–	Power supply input.
47	SPEANA-A/P25	O	Spectrum analyzer band switching output /FL segment P25 output.
48	SPEANA-B/P24	O	Spectrum analyzer band switching output /FL segment P24 output.
49	SPEANA-C/P23	O	Spectrum analyzer band switching output /FL segment P23 output.
50	P22/H-DUBB INH	I/O	FL segment P22 output / high dubbing inhibit input to diode.
51	VP	–	Power supply input for FL display.
52	P21/AM-ST	I/O	FL segment P21 output / AM stereo input to diode.
53	P20/LW	I/O	FL segment P20 output / LW mode data input to diode.
54	P19/SW	I/O	FL segment P19 output / SW mode data input to diode.

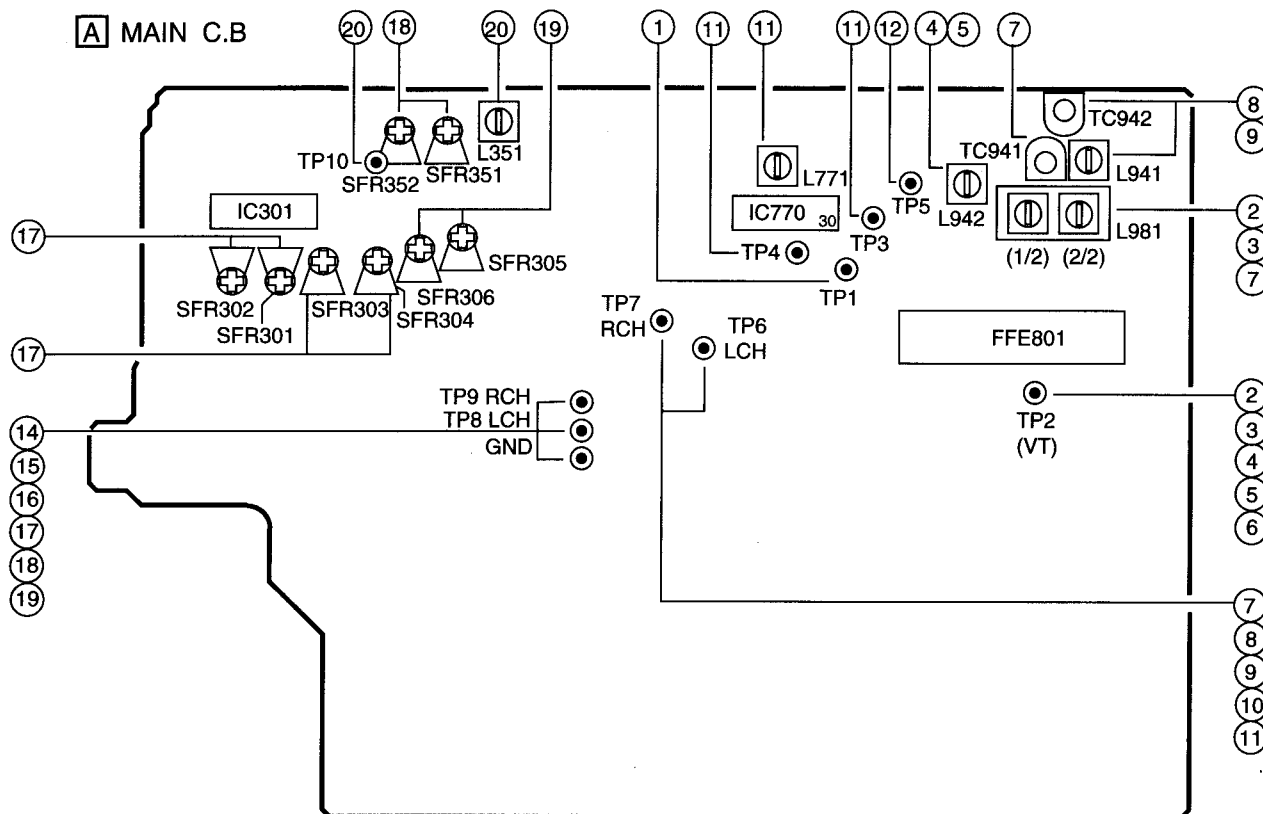
Pin No.	Pin Name	I/O	Description
55	P18/FM 1	I/O	FL segment P18 output / FM1 (OIRT) data input to diode.
56	P17/RDS	I/O	FL segment P17 output / RDS data input to diode.
57	P16/BBE	I/O	FL segment P16 output / BBE data input to diode.
58	P15/DSP	I/O	FL segment P15 output / DSP data input to diode.
59	P14/DOLBY-SURR	I/O	FL segment P14 output / DOLBY-SURR data input to diode.
60	P13/K-CON	I/O	FL segment P13 output / K-CON data input to diode.
61	P12/DOLBY	I/O	FL segment P12 output / DOLBY data input to diode.
62	P11/WAY	I/O	FL segment P11 output / DECK/WAY MECHA data input to diode.
63	P10/AM-9K/10K	I/O	FL segment P10 output / INITIAL AM 10 kHz step data input to diode.
64	P9/CST 2	I/O	FL segment P9 output / DECK2 cassette detect switch data input.
65	P8/REB	I/O	FL segment P8 output / DECK2 side-B record OK switch data input.
66	P7/CAM 2	I/O	FL segment P7 output / DECK2 CAM switch data input.
67	P6/AUTO 1	I/O	FL segment P6 output / DECK1 AUTO stop signal input.
68	P5/AUTO 2	I/O	FL segment P5 output / DECK2 AUTO stop signal input.
69	P4/CAM 1	I/O	FL segment P4 output / DECK1 CAM switch data input.
70	P3/CST 1	I/O	FL segment P3 output / DECK1 cassette detect switch data input.
71	P2/REA	I/O	FL segment P2 output / DECK2 side A record OK switch data input.
72	VDD 4	–	Power supply input.
73	P1/2092	I/O	FL segment P1 output / SHIFT resistor IC 2092 data input to diode.
74	K-SCAN	O	Switch SCAN timing output.
75	L CK	O	Latch clock output for front shift resistor.
76	PRO-CE	O	PRO LOGIC IC chip enable output.
77	PLL-CE	O	PLL IC chip enable output.
78	MA-STB	O	Latch strobe output for MAIN PWB.
79	DATA	O	DATA output for MAIN, FORNT, PROLOGIC PWB.
80	CLK	O	CLOCK output for MAIN, FORNT, PROLOGIC PWB.
81	DISH-RVS	O	CD turntable reverse rotation output.
82	DISH-FWD	O	CD turntable forward rotation output.
83	TRAY-OPEN	O	CD TRAY OPEN data output.
84	TRAY-CLOSE	O	CD TRAY CLOSE data output.
85	LED ►►	O	►► LED $\overline{\text{ON}}$ /OFF output.
86	LED ◄◄	O	◄◄ LED $\overline{\text{ON}}$ /OFF output.
87	LED ►	O	► LED $\overline{\text{ON}}$ /OFF output.
88	LED ◄	O	◄ LED $\overline{\text{ON}}$ /OFF output.
89	VSS 2	–	GND.
90	VDD 2	–	Power supply input.
91	LED ■	O	■ LED $\overline{\text{ON}}$ /OFF output.
92	LED	O	LED $\overline{\text{ON}}$ /OFF output.
93	SOL 1	O	DECK 1 Solenoid output.
94	SOL 2	O	DECK 2 Solenoid output.
95	O-MOTOR	O	DECK MOTOR ON/OFF output.
96	I-IFC/I-SUB Q	I	Tune IF count serial data input /CD SUB Q data input.

Pin No.	Pin Name	I/O	Description
97	I-STEREO/O-SQCLK	I/O	Tuner stereo detected input/CD SQ CLOCK output.
98	I-RDS-DATA/O-DATA	I/O	RDS data input/CD data output.
99	O-CD CE	O	CD CE output.
100	O-CD CLK	O	CD CLOCK output.

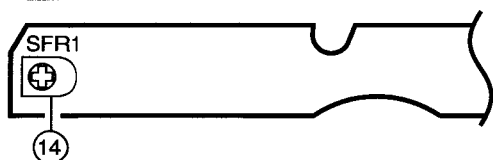
IC, LC72131

Pin No.	Pin Name	I/O	Description																								
1	XIN	I/O	A crystal oscillator (7.2MHz) is connected between these pins.																								
22	XOUT																										
2	NC	–	Not used.																								
3	CE	I	To enable the IC. Active "H".																								
4	DI	I	Digital data input from CPU (LC866548V-5E15) when relevant key is operated. Active "H".																								
5	CLK	I	To clock in the data DI.																								
6	DO	O	Digital data output to CPU (LC866548V-5E15).																								
7	TM-BASE	O	Outputs a reference clock signal (8Hz) for the clock.																								
8	MONO / BEAT	O	Outputs "H" when MONO / BEAT is switched.																								
9	$\overline{\text{FM}} / \text{AM}$	O	Output "L" or "H" as follows: <table><tr><td colspan="2">2 BAND</td><td colspan="3">3 BAND</td><td colspan="3">3 BAND</td></tr><tr><td>AM</td><td>FM</td><td>LW</td><td>MW</td><td>FM</td><td>MW</td><td>SW</td><td>FM</td></tr><tr><td>H</td><td>L</td><td>H</td><td>H</td><td>L</td><td>H</td><td>L</td><td>L</td></tr></table>	2 BAND		3 BAND			3 BAND			AM	FM	LW	MW	FM	MW	SW	FM	H	L	H	H	L	H	L	L
2 BAND		3 BAND			3 BAND																						
AM	FM	LW	MW	FM	MW	SW	FM																				
H	L	H	H	L	H	L	L																				
10	$\overline{\text{MW}}$	O	Outputs "L" or "H" as follows: <table><tr><td colspan="2">2 BAND</td><td colspan="3">3 BAND</td><td colspan="3">3 BAND</td></tr><tr><td>AM</td><td>FM</td><td>LW</td><td>MW</td><td>FM</td><td>MW</td><td>SW</td><td>FM</td></tr><tr><td>L</td><td>L</td><td>H</td><td>L</td><td>L</td><td>L</td><td>H</td><td>L</td></tr></table>	2 BAND		3 BAND			3 BAND			AM	FM	LW	MW	FM	MW	SW	FM	L	L	H	L	L	L	H	L
2 BAND		3 BAND			3 BAND																						
AM	FM	LW	MW	FM	MW	SW	FM																				
L	L	H	L	L	L	H	L																				
11	IF-MUTE	O	To control internal counter.																								
12	IFIN	I	General purpose counter input.																								
13	TUNE	I	Receives "L" when station is tuned.																								
14	NC	–	Not used.																								
15	A MIN	I	Receives the AM local oscillator frequency signal.																								
16	F MIN	I	Receives the FM local oscillator frequency signal.																								
17	VDD	–	Supply power to IC (+5V).																								
18	PD	O	PLL charge pump output.																								
19	AIN	I	The MOS transistor for PLL active low pass filter.																								
20	AOUT	O																									
21	VSS	–	Ground.																								

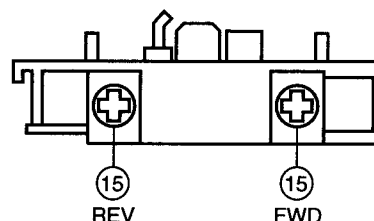
ADJUSTMENT - 1 <TUNER / DECK>



J DECK C.B



DECK-1 P, DECK-2 R / P / E HEAD



< TUNER SECTION >

1. Clock Frequency Check
 Settings : • Test point : TP1 (CLK IC770 pin30)
 Method : Set to MW 1710kHz (HR), 1602kHz (EZ,K,V), and check that the test point is $2160\text{kHz} \pm 45\text{Hz}$ (HR), $2052 \pm 0.045\text{kHz}$ (EZ,K,V).
2. MW VT Adjustment
 Settings : • Test point : TP2 (VT)
 • Adjustment location : L981 (1/2)
 Method : Set to MW 1710kHz (HR), 531kHz (EZ,K,V) and adjust L981 (1/2) so that the test point is $8.5\text{V} \pm 0.05\text{V}$ (HR), $1.5\text{V} \pm 0.05\text{V}$ (EZ,K,V).
3. MW VT Check
 Settings : • Test point : TP2 (VT)
 Method : Set to MW 530kHz (HR), 1602kHz (EZ,K,V) and check that the test point is more than 0.3 (HR), less than 8.5 (EZ,K,V).
4. SW VT Adjustment <HR>
 Settings : • Test point : TP2 (VT)
 • Adjustment location : L942
 Method : Set to SW 17.9MHz and adjust L942 so that the test point is $7.0\text{V} \pm 0.05\text{V}$.
5. LW VT Adjustment <EZ,K,V>
 Settings : • Test point : TP2 (VT)
 • Adjustment location : L942
 Method : Set to LW 144kHz and adjust L942 so that the test point is $1.3\text{V} \pm 0.05\text{V}$.
6. FM VT Check (HR)
 Settings : • Test point : TP2 (VT)
 Method : Set to FM 87.5MHz, 108.0MHz and check that the test point is more than 1.5V (87.5MHz) and less than 8.5V (108.0MHz).
7. MW Tracking Adjustment <HR>
 Settings : • Test point : TP6, TP7
 • Adjustment location :
 L981 (2/2) 600kHz
 TC941 1400kHz
 Method : Set up TC941 to center before adjustment, the level at 600kHz is adjust to maximum by L981 (2/2). Then the level at 1400kHz is adjust to maximum by TC941.

PRACTICAL SERVICE FIGURE

<TUNER SECTION>

<FM SECTION>

IHF Sensitivity :	4dB ± 6dB (74HR)
(THD 3%)	[at 87.5 / 98.0 / 108.0MHz (74HR)] Less than 10dB (70EZ,K,V) [at 87.5 / 98.0 / 108.0MHz (70EZ,K,V)]
S/N 50dB Quieting sensitivity :	30dB ± 6dB (74HR)
	[at 87.5 / 98.0 / 108.0MHz (74HR)] Less than 38dB (70EZ,K,V) [at 87.5 / 98.0 / 108.0MHz (70EZ,K,V)]
Signal to noise ratio :	Mono : More than 65dB Stereo : More than 64dB [at 98.0MHz]
Distortion :	Mono : Less than 1.3% Stereo : Less than 2.0% [at 98.0MHz]
Auto stop level :	25dB ± 10dB [at 98.0MHz]
Stereo separation :	74HR : More than 25dB [at 98.0MHz] 70EZ,K,V : More than 22dB [at 98.0MHz]
Intermediate frequency :	10.7MHz

<MW SECTION>

Sensitivity :	50 ~ 60dB
(S/N 20 dB)	[at 603kHz]
	48 ~ 58dB
	[at 999kHz]
	48 ~ 58dB
	[at 1404kHz]
Signal to noise ratio :	More than 36dB
	[at 999kHz]
Distortion :	Less than 1.5%
	[at 999kHz]
Auto stop level :	50dB +10/-15dB
	[at 999kHz]
Intermediate frequency :	450kHz

<LW SECTION> (70EZ,K,V)

Sensitivity :	61 ~ 71dB
(S/N 20 dB)	[at 144kHz]
	58 ~ 68dB
	[at 198kHz]
	58 ~ 68dB
	[at 290kHz]
Signal to noise ratio :	More than 36dB
	[at 198kHz]
Distortion :	Less than 1.2%
	[at 198kHz]
Auto stop level :	66dB +10/-15dB
	[at 198kHz]
Intermediate frequency :	450kHz

<SW SECTION> (74HR)

Sensitivity :	38 ± 5dB
(S/N 20 dB)	[at 5.9MHz]
	33 ± 5dB
	[at 12.0 MHz]
	30 ± 5dB
	[at 17.9MHz]
Signal to noise ratio :	More than 36dB
	[at 12.0MHz]
Distortion :	Less than 2.0%
	[at 12.0MHz]
Intermediate frequency :	450kHz

<DECK SECTION>

Tape speed :	3000Hz $\pm$ 45Hz
Wow & flutter :	Less than 0.15% (W.R.M.S)
Take-up torque :	30 ~ 55g-cm (FWD, REV)
[z] F.F & REW torque :	75 ~ 180g-cm
Back tension :	2 ~ 7g-cm (FWD, REV)
PB output level :	300mV $\pm$ 1dB (SP OUT 2V)
REC/PB output level :	180mV $\pm$ 2dB (SP OUT 2V)
Distortion (REC/PB) :	Less than 2.0% (NORM, CrO2)
Noise level (REC/PB) :	Less than 1.8mV (NORM, SP OUT 2V, DOLBY OFF) Less than 1.1mV (CrO2, SP OUT 2V, DOLBY B,C ON)
Crosstalk :	More than 60dB (1kHz, 0VU)
Channel separation :	More than 30dB (1kHz, 0VU)
Erasing ratio :	More than 30dB (at 125Hz)
Test tape :	TTA-602 (NORMAL) TTA-615 (CrO2)

8. SW Tracking Adjustment <HR>

Settings : • Test point : TP6,TP7
• Adjustment location :
L941 5.9MHz
TC942 17.9MHz

Method : Set up TC942 to center before adjustment. The level at 5.9MHz is adjust to maximum by L941. Then the level at 17.9MHz is adjust to maximum by TC942.

9. LW Tracking Adjustment <EZ,K,V>

Settings : • Test point : TP6, TP7
• Adjustment location :
 L941 144kHz
 TC942 290kHz

Method : Set up TC942 to center before adjustment. The level at 144kHz is adjust to maximum by L941. Then the level at 290kHz is adjust to maximum by TC942.

10. FM Tracking Check

Settings : • Test point : TP6, TP7
Method : Set to FM 98.0MHz (HR,EZ,K,V), 70MHz (V), 98MHz (V), and check that the test point is $2 \pm 6\text{dB}$ (HR), $6 \pm 6\text{dB}$ (EZ,K), $2 \pm 6\text{dB}$ (V), $6 \pm 5\text{dB}$ (70MHz (V)).

11. DC Balance / Mono Distortion Adjustment

Settings : • Test point : TP3, TP4 (DC Balance)
: TP6, TP7 (Distortion)
• Adjustment location : L771
• Input level : 54dB

Method : Set to FM 98.0MHz and adjust L771 so that the voltage between TP3 and TP4 becomes $0V \pm 0.04V$.
Next, check that the distortion is less than 1.3%.

12. Auto Stop Level Check

Settings :

- Test point : TP5
- Input level : Variable

Method : Set to FM 98.0MHz and check voltage low (about 0.1V). After that voltage high (about 7.0V) by 2dB down and the level is $25 \pm 10\text{dB}$.

13. Auto Stop Level Check

SW

- Input level : Variable

Method : Check auto stop at SW 12MHz and the level is less than 60dB.

MW

- Input level : Variable

Method : Check auto stop at MW 999kHz and the level is 50 +10/-15dB.

FM

- Input level : Variable

Method : Check auto stop at FM 98.0MHz and the level is 25 dB $\pm$ 10 dB.

< DECK SECTION >

14. Tape Speed Adjustment

Settings : • Test tape : TTA-100
• Test point : TP8, TP9
• Adjustment location : SFR1

Method : Play back the test tape and adjust SFR1
so that the frequency counter reads 3000Hz
± 5Hz.

15. Head Azimuth Adjustment

Settings :

- Test tape : TTA-300
- Test point : TP8, TP9
- Adjustment location : Head azimuth adjustment screw

Method : Play back the 10kHz signal of the test tape and adjust screw so that the output becomes maximum.

16. PB Frequency Response Check (DECK 1, DECK 2)

Settings : • Test tape : TTA-300
• Test point : TP8, TP9

Method : Play back the 315Hz and 10kHz signals of the test tape and check that the output ratio of the 10kHz signal with respect to that of the 315Hz signal is $\pm 2\text{dB}$.

17. PB Sensitivity Adjustment (DECK 1, DECK 2)

Settings : • Test tape : TTA-200
• Test point : TP8, TP9
• Adjustment location : SFR301 (DECK 1, Lch)
SFR302 (DECK 1, Rch)
SFR303 (DECK 2, Lch)
SFR304 (DECK 2, Rch)

Method : Play back the test tape and adjust SFRs so that the output level of the test point becomes 245mV.

18. REC/PB Frequency Response Adjustment

Settings :

- Test tape : TTA-602
- Test point : TP8, TP9
- Input signal : 1kHz / 10kHz (LINE IN)
- Adjustment location : SFR351 (Lch)
SFR352 (Rch)

Method : Apply a 1kHz signal and REC mode. Then adjust OSC attenuator so that the output level at the TP8, TP9 becomes 17mV. Record and play back the 1kHz and 10kHz signals and adjust SFRs so that the output of the 10kHz signals becomes $0\text{dB} \pm 0.5\text{dB}$ with respect to that of the 1kHz signal.

19. REC/PB Sensitivity Adjustment

Settings :

- Test tape : TTA-602
- Test point : TP8, TP9
- Input signal : 1kHz (LINE IN)
- Adjustment location : SFR305 (Lch)
SFR306 (Rch)

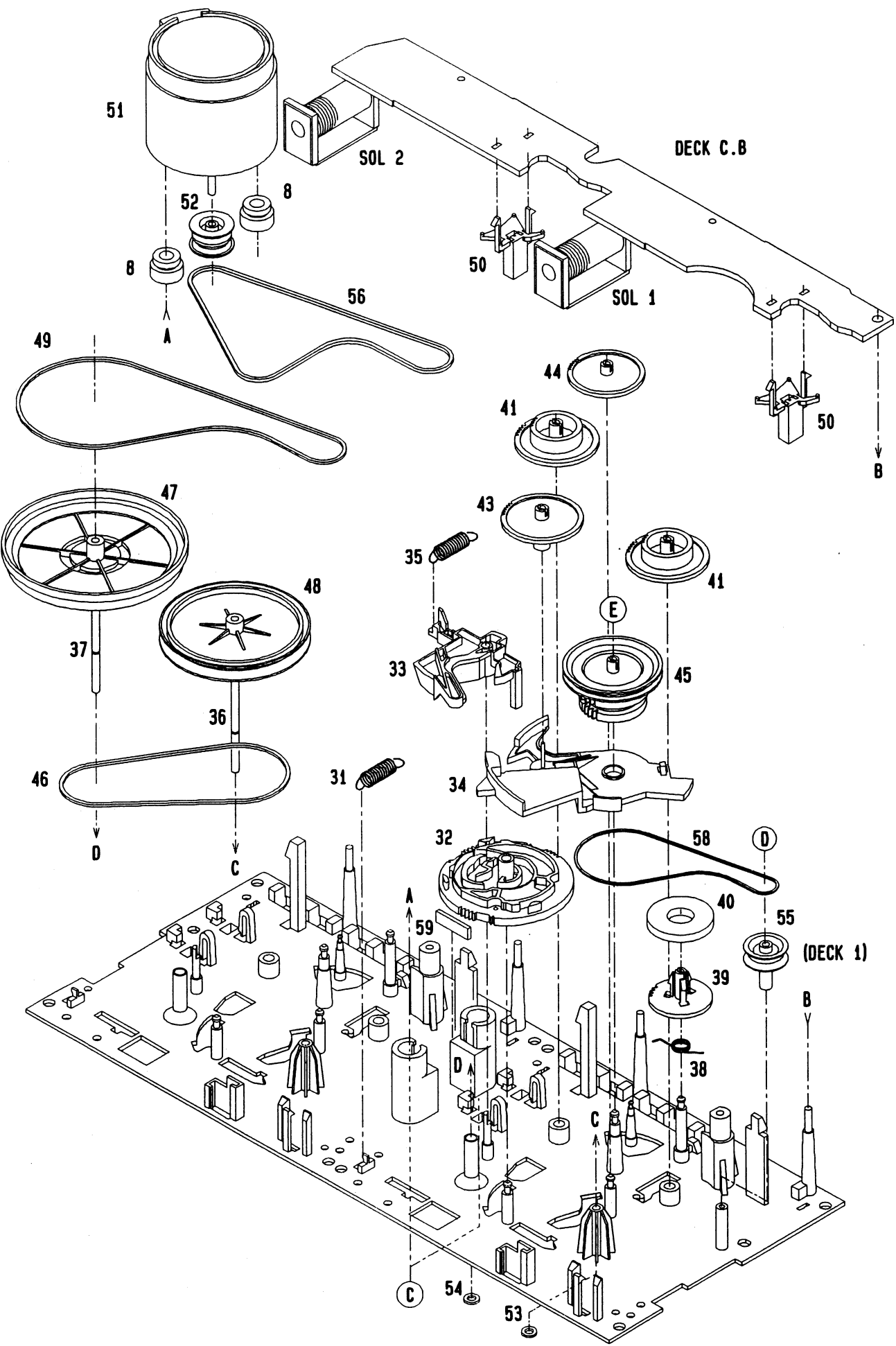
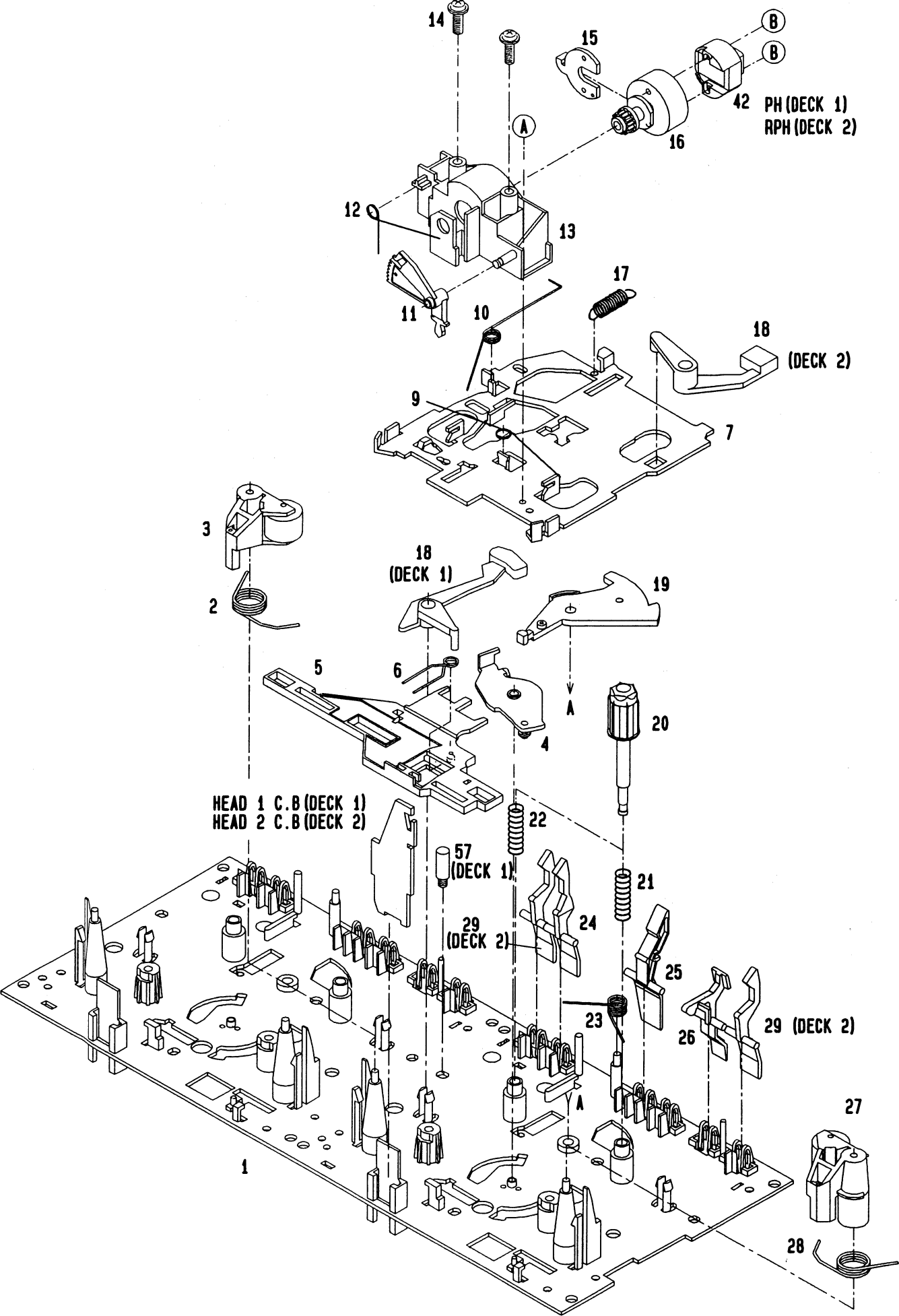
Method : Apply a 1kHz signal and REC mode. Then adjust OSC attenuator so that the output level at the TP8, TP9 becomes 17mV. Record and play back the 1kHz signals and adjust SFRs so that the output becomes $17\text{mV} \pm 0.5\text{dB}$.

20. Bias OSC Frequency Adjustment

Settings : • Test tape : TTA-615
• Test point : TP10
• Adjustment location : L351

Method : Set to the REC mode. Adjust L351 so that the frequency at the test point is $85\text{kHz} \pm 1\text{kHz}$.

TAPE MECHANISM EXPLODED VIEW 1 / 1

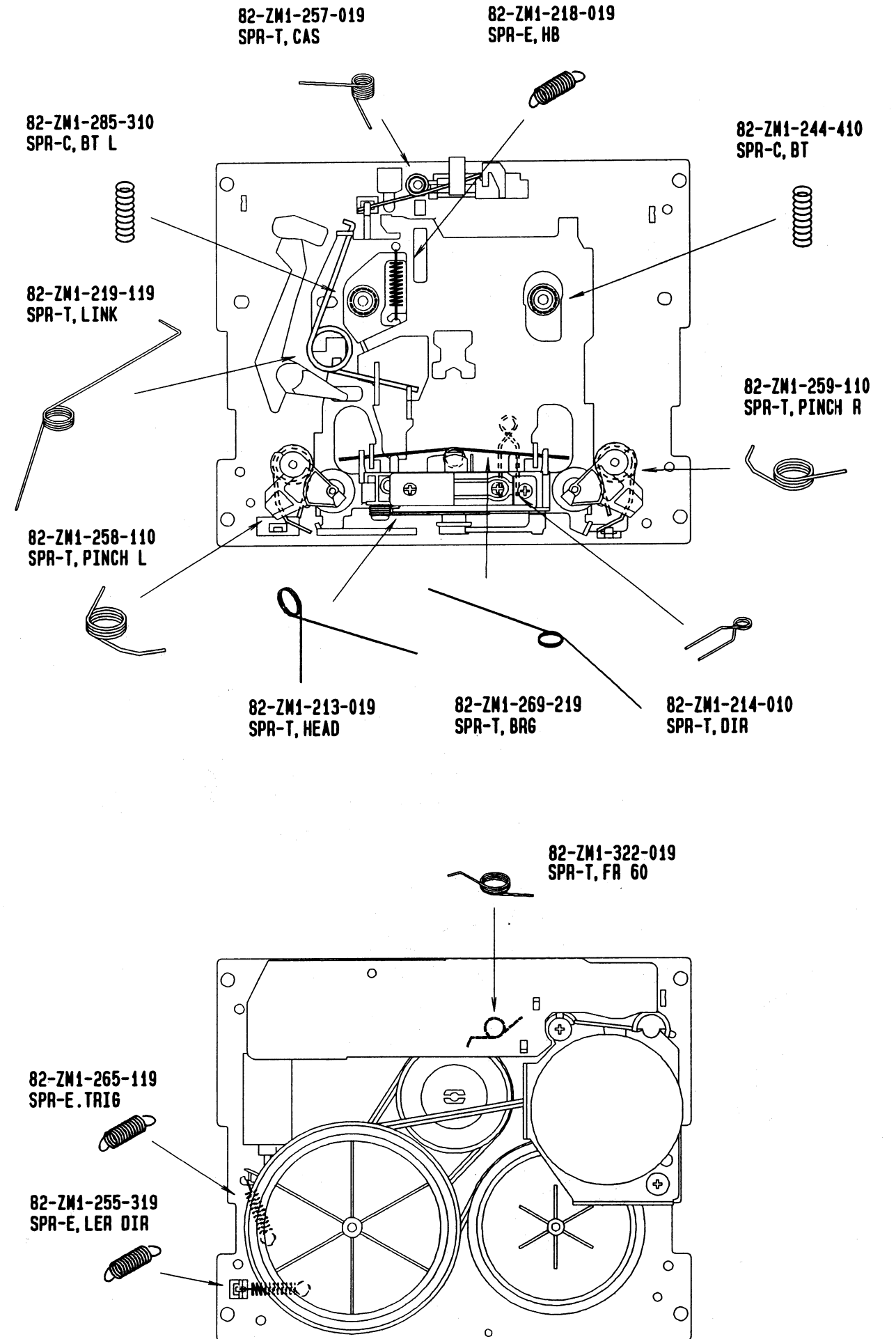


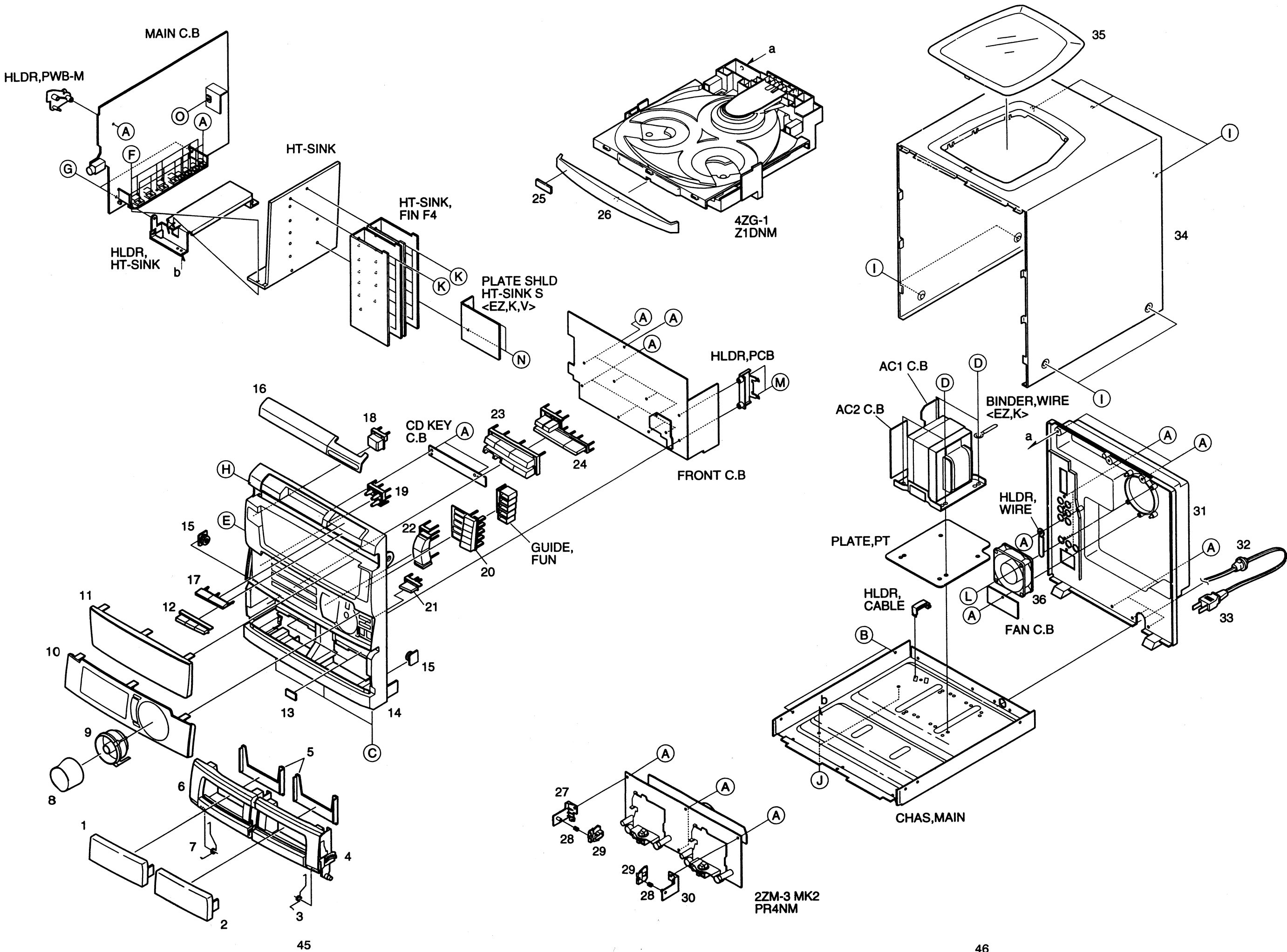
TAPE MECHANISM PARTS LIST 1 / 1

If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	82-ZM3-301-519		CHAS ASSY,M2	36	82-ZM1-236-019		CAPSTAN N 2-41.5
2	82-ZM1-258-110		SPR-T,PINCH L	37	82-ZM1-239-019		CAPSTAN N 2.2-41.7
3	82-ZM1-341-110		LVR ASSY,PINCH L2	38	82-ZM1-322-019		SPR-T,FR60
4	82-ZM1-333-010		PLATE,LINK 2	39	82-ZM1-220-219		GEAR,IDLER
5	82-ZM1-266-11K		LVR,DIR	40	82-ZM3-616-019		RING MAGNET 4
6	82-ZM1-214-010		SPR-T,DIR	41	82-ZM1-216-31K		GEAR,REEL
7	82-ZM1-206-81K		CHAS,HEAD	42	87-A90-319-010		HEAD,PH HADKH2 FPC
8	82-ZM3-307-019		CUSH-G,DIA3.7-8-3.2	42	87-A90-320-010		HEAD,RPH HADKH5 FPC
9	82-ZM1-269-219		SPR-T,BRG	43	82-ZM1-225-21K		GEAR,FR
10	82-ZM1-219-119		SPR-T,LINK	44	82-ZM1-226-019		GEAR,REW
11	82-ZM1-210-119		GEAR,H T	45	82-ZM3-333-310		SLIP DISK ASSY 2
12	82-ZM1-213-019		SPR-T,HEAD	46	82-ZM1-338-010		BELT FR4
13	82-ZM1-207-619		GUIDE,TAPE	47	82-ZM1-349-110		FLY-WHL,R W(DECK 2)
14	86-ZM4-206-010		S-SCREW,AZIMUTH	47	82-ZM3-338-110		FLY-WHL,R3 W(DECK 1)
15	82-ZM1-314-119		PLATE,HEAD	48	82-ZM1-348-010		FLY-WHL,L W(DECK 2)
16	82-ZM1-208-119		HLDR,HEAD	48	82-ZM1-348-010		FLY-WHL,L W(DECK 1)
17	82-ZM1-218-019		SPR-E,HB	49	82-ZM3-329-210		BELT,SBU R2
18	82-ZM1-263-110		LVR,EJECT L (DECK 1)	50	82-ZM1-245-210		HLDR,IC
18	82-ZM1-264-010		LVR,EJECT R (DECK 2)	51	87-045-347-019		MOT,SHU2L 70(M1)
19	82-ZM1-222-21K		LVR,PLAY	52	82-ZM3-221-010		PULLEY,MOT 2M
20	82-ZM1-217-319		REEL TABLE	53	82-ZM1-288-019		SH,1.63-3.2-0.5 SLT
21	82-ZM1-244-510		SPR-C,BT	54	80-ZM6-243-019		SH,1.75-3.6-0.5 SLT
22	82-ZM1-285-310		SPR-C,BT L	55	82-ZM3-335-210		PULLEY,COUPLER M3(DECK 1)
23	82-ZM1-257-019		SPR-T,CAS	56	82-ZM3-337-010		BELT,SBU MOT 2
24	82-ZM1-241-319		LVR,MC	57	82-ZM3-339-010		SHAFT,COUPLER N3(DECK 1)
25	82-ZM1-242-019		LVR,CAS	58	86-ZM1-206-010		BELT,MAIN L
26	82-ZM1-243-019		LVR,STOP	59	82-ZM3-340-010		SH,BELT D2
27	82-ZM1-344-110		LVR ASSY,PINCH R2	A	85-ZM3-202-010		S-SCREW,TG
28	82-ZM1-259-110		SPR-T,PINCH R	B	80-ZM6-207-019		V+1.6-7
29	82-ZM1-240-11K		LVR,REC (DECK 2)	C	82-ZM3-318-019		S-SCRW MOTOR M2
31	82-ZM1-255-319		SPR-E,LVR DIR	D	87-B10-043-010		W-P,0.99-4-0.25 SLT
32	82-ZM3-305-01K		GEAR,CAM M2	E	82-ZM3-334-010		PW,2.16-6-0.4
33	82-ZM1-227-21K		LVR,TRIG				
34	82-ZM3-306-11K		LVR,FR M2				
35	82-ZM1-265-119		SPR-E,TRIG				

SPRING APPLICATION POSITION





MECHANICAL PARTS LIST 1 / 1

If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	87-NF5-010-010		WINDOW, CASS 1	28	82-NF5-228-010		SPR-C, LOCK
2	87-NF5-011-010		WINDOW, CASS 2	29	82-NF5-229-010		PLATE, LOCK
3	82-NF5-219-010		SPR-T, EJECT 2 (SIN)	30	87-NF4-217-010		HLDR, LOCK 2
4	87-NF5-004-010		BOX, CASS 2H	31	87-NF5-033-010		CABI, REAR EZSTNE<70EZ>
5	86-NF6-061-010		REFLECTOR, CASS	31	87-NF5-036-010		CABI, REAR HRJSTNM<74HR>
6	87-NF5-003-010		BOX, CASS 1H	31	87-NF5-034-010		CABI, REAR KSTNE<70K>
7	82-NF5-218-010		SPR-T, EJECT 1 (SIN)	31	87-NF5-038-010		CABI, REAR VSTNM<70V>
8	87-NF5-023-010		KNOB, RTRY VOL	32	87-085-185-010		BUSHING, AC CORD(E) CM-22B
9	87-NF5-007-010		RING, VOL	33	87-050-016-010		AC CORD ASSY, E<70EZ>
10	87-NF5-002-010		PANEL, FR H	33	87-050-079-010		AC CORD ASSY, E BLK<74HR, 70V>
11	87-NF5-048-010		WINDOW, DISP E<70EZ>	33	87-A80-023-010		AC CORD ASSY, K 3P W<70K>
11	87-NF5-009-010		WINDOW, DISP H<EXCEPT 70EZ>	34	86-NFT-005-110		CABI, STEEL TS
12	87-NF5-016-010		KEY, DISC	35	86-NF6-007-010		WINDOW, TOP
13	81-532-080-010		LBL, CASS-COMPT	36	87-A90-463-010		FAN, 2408NL<74HR>
14	87-NF5-001-010		CABI, FR H<EXCEPT 74HR>	A	87-067-703-010		BVT2+3-10 W/O SLOT
14	87-NF5-042-010		CABI, FR H S74<74HR>	B	87-591-094-410		QIT+3-6
15	87-063-165-010		OIL-DMPR, 150	C	87-067-688-010		BVTT+3-6
16	87-NF5-008-010		WINDOW, CD	D	87-067-975-010		S-SCREW, IT+4-8 SWCH12A
17	87-NF5-015-010		KEY, OPEN	E	87-721-096-410		QT2+3-10 W/O SLOT
18	87-NF5-017-010		KEY, POWER	F	87-067-758-010		BVT2+3-12 W/O SLOT
19	87-NF5-019-010		KEY, DEMO	G	87-067-633-010		BVT2+3-8 W/O SLOT W/CONVEX
20	87-NF5-018-010		KEY, FUN	H	87-721-097-410		QT2+3-12 W/O SLOT
21	87-NF5-020-010		KEY, VF	I	87-067-641-010		UTT2+3-8 W/O SLOT BLK
22	87-NF5-022-010		KEY, GEQ	J	87-067-584-010		BVT2+3-6 W/O SLOT
23	87-NF5-024-010		KEY, ASSY OPE	K	87-067-690-010		BVIT3B+3-12 BLK
24	87-NF5-021-010		KEY, EDIT<EXCEPT 70EZ>	L	87-571-104-410		VIT+3-30<74HR>
24	87-NF5-052-010		KEY, RDS<70EZ>	M	87-067-581-010		BVT2+3-15 W/O SLOT
25	82-NE6-067-010		BADGE, AIWA 30N	N	87-B10-090-010		BVIT3B+3-12 GOLD<EXCEPT 74HR>
26	87-NF5-005-010		PANEL, TRAY H	O	87-067-579-010		BVT2+3-8 W/O SLOT
27	87-NF4-216-010		HLDR, LOCK 1				

ACCESSORIES / PACKAGE LIST

If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

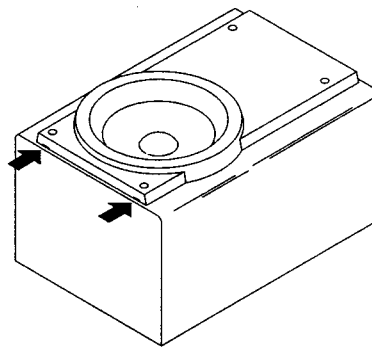
REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	87-NF5-901-010		IB, H(ECA)M<74HR>
1	87-NF5-905-010		IB, K(E)E<70K>
1	87-NF5-906-010		IB, E(EGFSI)E<70EZ>
1	87-NF5-907-010		IB, V(ERHPCH)M<70V>
2	87-NB7-651-010		RC UNIT, RC-7AS08
3	87-A90-064-010		FEEDER-ANT, FM (SHS)<70V, 74HR>
3	87-043-106-010		ANT, FM 1007 AWG<70EZ, K>
4	87-A90-312-010		PLUG, CONVERSION WTN-1157R1<74HR>
5	87-006-225-010		ANT, LOOP ANT NC2<70EZ, K, V>
5	87-A90-054-010		ANT, LOOP AM-CON C<74HR>
6	87-043-095-010		ANT, WIRE<74HR>

SPEAKER DISASSEMBLY INSTRUCTIONS

Type.1

矢印の位置にマイナスドライバーを差し込んで、パネルを外します。各々のスピーカーユニットのビスを取り、スピーカーユニットを外してください。

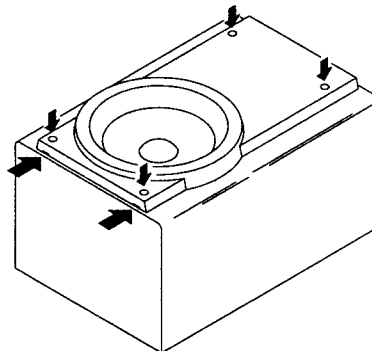
Insert a flat-bladed screwdriver into the position indicated by the arrows and remove the panel. Remove the screws of each speaker unit and then remove the speaker units.



Type.2

グリルフレームを外し、4個のゴムキャップをマイナスドライバーで端の方から持ち上げて外すと中にビスがありますので、ビスを取り外します。矢印の位置にマイナスドライバーを差し込んで、パネルを外します。各々のスピーカーユニットのビスを取り、スピーカーユニットを外してください。

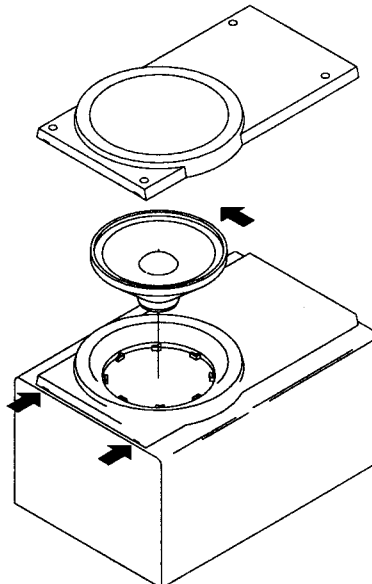
Remove the grill frame and four pieces of rubber caps by pulling out with a flat-bladed screwdriver. Remove the screws from hole where installed rubber caps. Insert a flat-bladed screwdriver into the position indicated by the arrows and remove the panel. Remove the screws of each speaker unit and then remove the speaker units.



Type.3

矢印の位置にマイナスドライバーを差し込んで、パネルを外します。各々のスピーカーユニットの凹にマイナスドライバーを差し込んで、反時計方向に回転させスピーカーユニットを外してください。スピーカーユニット交換後は時計方向にクリック音がするまで、回転させて取り付けます。

Insert a flat-bladed screwdriver into the position indicated by the arrows and remove the panel. Turn the speaker unit to counter-clockwise direction while inserting a flat-bladed screwdriver into one of the hollows around speaker unit, and then remove the speaker unit. After replacing the speaker unit, install it turning to clockwise direction until "click" sound comes out.



SX-ANS70 (YJ,YL,Y,YJ1,YJ7,Y1) SPEAKER PARTS LIST

If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	87-NS5-001-010		PANEL, FR R
2	87-NS5-002-010		PANEL, FR L
3	87-NS5-010-010		PROTECTOR, R
4	87-NS5-011-010		PROTECTOR, L
5	87-NS5-012-010		PROTECTOR, TOP
6	87-NS5-025-010		GRILLE, FRAME ASSY R
7	87-NS5-026-010		GRILLE, FRAME ASSY L
8	87-NS4-611-019		SPKR, CORD
9	85-NS6-611-019		SPKR, CORD Y/B
10	87-NS5-602-019		SPKR, W 160
11	87-NS5-604-019		SPKR, MID
12	87-NS5-605-019		SPKR, T 50

SX-NS74 (YJ,YL,YJ7) SPEAKER PARTS LIST

If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	87-NSE-001-010		PANEL, FR R
2	87-NSE-002-010		PANEL, FR L
3	87-NSF-003-010		PANEL, DUCT R
4	87-NSF-004-010		PANEL, DUCT L
5	87-NSE-012-010		GRILLE, FRAME ASSY R
6	87-NSE-014-010		GRILLE, FRAME ASSY L
7	87-NSE-602-019		SPKR, W 160
8	87-NSE-604-019		SPKR, T 80
9	87-NSF-610-019		SPKR, CORD

SX-R240 (YB,YJB,YUB,YUST,YJST,YST,YUAST) SPEAKER PARTS LIST

If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	85-NSV-001-010		PANEL, FR<YB, YJB, YUB>
1	86-NSX-009-010		PANEL FR ST<YUST, YJST, YST, YUAST>
2	85-NSX-005-010		GRILLE, FRAME ASSY<EXCEPT YUAST>
2	85-NSX-015-010		GRILLE, FRAME ASSY B<YUAST>
3	85-NSL-601-010		SPEAKER
4	81-VSA-010-010		SPEAKER CORD

REFERENCE NAME LIST

ELECTRICAL SECTION

DESCRIPTION	REFERENCE NAME
ANT	ANTENNAS
C-	CHIP
C-CAP	CAP, CHIP
C-CAP TN	CAP, CHIP TANTALUM
C-COIL	COIL, CHIP
C-DI	DIODE, CHIP
C-DIODE	DIODE, CHIP
C-FET	FET, CHIP
C-FOTR	FILTER, CHIP
C-JACK	JACK, CHIP
C-LED	LED, CHIP
C-RES	RES, CHIP
C-SFR	SFR, CHIP
C-SLIDE SW	SLIDE SWITCH, CHIP
C-SW	SWITCH, CHIP
C-TR	TRANSISTOR, CHIP
C-VR	VOLUME, CHIP
C-ZENER	ZENER, CHIP
CAP, CER	CAP, CERA-SOL
CAP, E	CAP, ELECT
CAP, M/F	CAP, FILM
CAP, TC	CAP, CERA-SOL
CAP, TC-U	CAP, CERA-SOL SS
CAP, TN	CAP, TANTALUM
CERA FIL	FILTER, CERAMIC
CF	FILTER, CERAMIC
DL	DELAY LINE
E/CAP	CAP, ELECT
FILT	FILTER
FLTR	FILTER
FUSE RES	RES, FUSE
MOT	MOTOR
P-DIODE	PHOTO DIODE
P-SNSR	PHOTO SENSER
P-TR	PHOTO TRANSISTOR
POLY VARI	VARIABLE CAPACITOR
PPCAP	CAP, PP
PT	POWER TRANSFORMER
PTR, RES	PTR, MELF
RC	REMOTE CONTROLLER
RES NF	RES, NON-FLAMMABLE
RESO	RESONATOR
SHLD	SHIELD
SOL	SOLENOID
SPKR	SPEAKER
SW, LVR	SWITCH, LEVER
SW, RTRY	SWITCH, ROTARY
SW, SL	SWITCH, SLIDE
TC CAP	CAP, CERA-SOL
THMS	THERMISTOR
TR	TRANSISTOR
TRIMER	CAP, TRIMMER
TUN-CAP	VARIABLE CAPACITOR
VIB, CER	RESONATOR, CERAMIC
VIB, XTAL	RESONATOR, CRYSTAL
VR	VOLUME
ZENER	DIODE, ZENER

MECHANICAL SECTION

DESCRIPTION	REFERENCE NAME
ADHESHIVE	SHEET ADHESHIVE
AZ	AZIMUTH
BAR-ANT	BAR-ANTENNA
BAT	BATTERY
BATT	BATTERY
BRG	BEARING
BTN	BUTTON
CAB	CABINET
CASS	CASSETTE
CHAS	CHASSIS
CLR	COLLAR
CONT	CONTROL
CRSR	CURSOR
CU	CUSHION
CUSH	CUSHION
DIR	DIRECTION
DUBB	DUBBING
FL	FRONT LOADING
FLY-WHL	FLYWHEEL
FR	FRONT
FUN	FUNCTION
G-CU	G-CUSHION
HDL	HANDOL
HIMERON	CLOTH
HINGE, BAT	HINGE, BATTERY
HLDR	HOLDER
HT-SINK	HEAT SINK
IB	INSTRUCTION BOOKLET
IDLE	IDLER
IND, L-R	INDICATOR, L-R
KEY, CONT	KEY, CONTROL
KEY, PRGM	KEY, PROGRAM
KNOB, SL	KNOB, SLIDE
LBL	LABEL
LID, BATT	LID, BATTERY
LID, CASS	LID, CASSETTE
LVR	LEVER
P-SP	P-SPRING
PANEL, CONT	PANEL, CONTROL
PANEL, FR	PANEL, FRONT
PRGM	PROGRAM
PULLY, LOAD MO	PULLY, LOAD MOTOR
RBN	RIBBON
S-	SPECIAL
SEG	SEGMENT
SH	SHEET
SHLD-SH	SHIELD-SHEET
SL	SLIDE
SP	SPRING
SP-SCREW	SPECIAL-SCREW
SPACER, BAT	SPACER, BATTERY
SPR	SPRING
SPR-P	P-SPRING
SPR-PC-PUSH	P-SPRING, C-PUSH
T-SP	T-SPRING
TERM	TERMINAL
TRIG	TRIGGER
TUN	TUNING
VOL	VOLUME
W	WASHER
WHL	WHEEL
WORM-WHL	WORM-WHEEL

サービス技術ニュース	
番号	連絡内容
G-	-
G-	-
G-	-

アイワ株式会社
AIWA CO.,LTD.

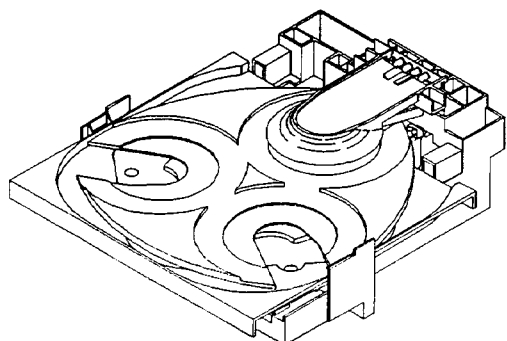
9301978, 750038

Tokyo Japan

aiwa



4ZG-1
4ZG-1A
4ZG-1B
4ZG-1Z



CD MECHANISM

• BASIC CD MECHANISM: KSM-2 131 BAM
3ZG-2 C1 / 3ZG-2 C2 / 3ZG-2 C5

•TYPE: English

BASIC NAME		DERIVATION NAME							
4ZG-1	*1	—	—	—	—	WR	—	—	—
	*2	G	D	F	R	—	V3L	V4L	V5
4ZG-1A		G	D	—	—	—	—	—	—
4ZG-1B		G	D	—	—	—	—	—	—
4ZG-1Z		—	D	—	—	—	—	—	—

- *1,*2, have the same BASIC NAME but the board structures are different.
The CD BLOCK,VCD BLOCK of the WR are shown on the SERVICE MANUAL of each DERIVATION NAME .
- This mechanism has various derivation. Derivation name is indicated by the Service Manual for each model.
- For different version of mechanism that may be introduced since the issue of this manual, only the new or modified points be discussed.

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PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.



- Caution: Invisible laser radiation when open and interlocks defeated avoid exposure to beam.
- Advarsel: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

VAROITUS!

Laiteen Käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylit-tävälle näkymättömälle lasersäteilylle.

WARNING!

Om apparaten används på annat sätt än vad som specificeras i denna bruksanvisning, kan användaren utsättas för osynlig laserstråling, som överskrider gränsen för laserklass 1.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

ATTENTION

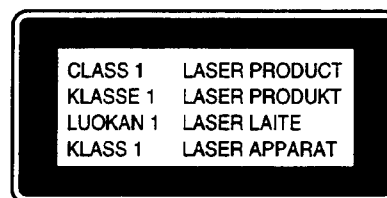
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

ADVARSEL!

Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

This Compact Disc player is classified as a CLASS 1 LASER product.

The CLASS 1 LASER PRODUCT label is located on the rear exterior.



This is the SERVICE MANUAL for the BASIC CD MECHANISM of BASIC NAME: 4ZG-1. This BASIC NAME includes the following models as shown under the SUFFIX name: DERIVATION NAME. Please use this manual with the separate SERVICE MANUAL for DERIVATION NAME.

BASIC CD MECHANISM: 4ZG-1 AGD
SUFFIX
(DERIVATION NAME)

BASIC NAME: 4ZG-1 (ORIGINAL MODEL)
4ZG-1A (SONY IC MODEL)
4ZG-1B (TOSHIBA IC MODEL)
4ZG-1Z (SANYO IC MODEL)

BASIC NAME		DERIVATION NAME							
4ZG-1	*1	—	—	—	—	WR	—	—	—
	*2	G	D	F	R	—	V3L	V4L	V5
4ZG-1A		G	D	—	—	—	—	—	—
4ZG-1B		G	D	—	—	—	—	—	—
4ZG-1Z		—	D	—	—	—	—	—	—

NOTE:

- *1 and *2 have the same BASIC NAME but the board structures are different.
- The CD BLOCK, VCD BLOCK of the WR is shown on the SERVICE MANUAL of each DERIVATION NAME.
- Model 4ZG-1 A, B and Z has “F” as the standard installation.

BOARD NAME BASIC NAME	3CD C.B	LED C.B	T-T C.B	MOTOR C.B	MAIN VCD C.B	CD MECHA C.B	VCD C.B	DRIVE C.B
4ZG-1 *1	—	—	○	—	—	—	—	○
4ZG-1 *2	—	○	○	—	○	○	○ (EXCEPT V5)	—
4ZG-1A	○	○	○	○	—	—	—	—
4ZG-1B	○	○	○	○	—	—	—	—
4ZG-1Z	○	○	○	—	—	—	—	○

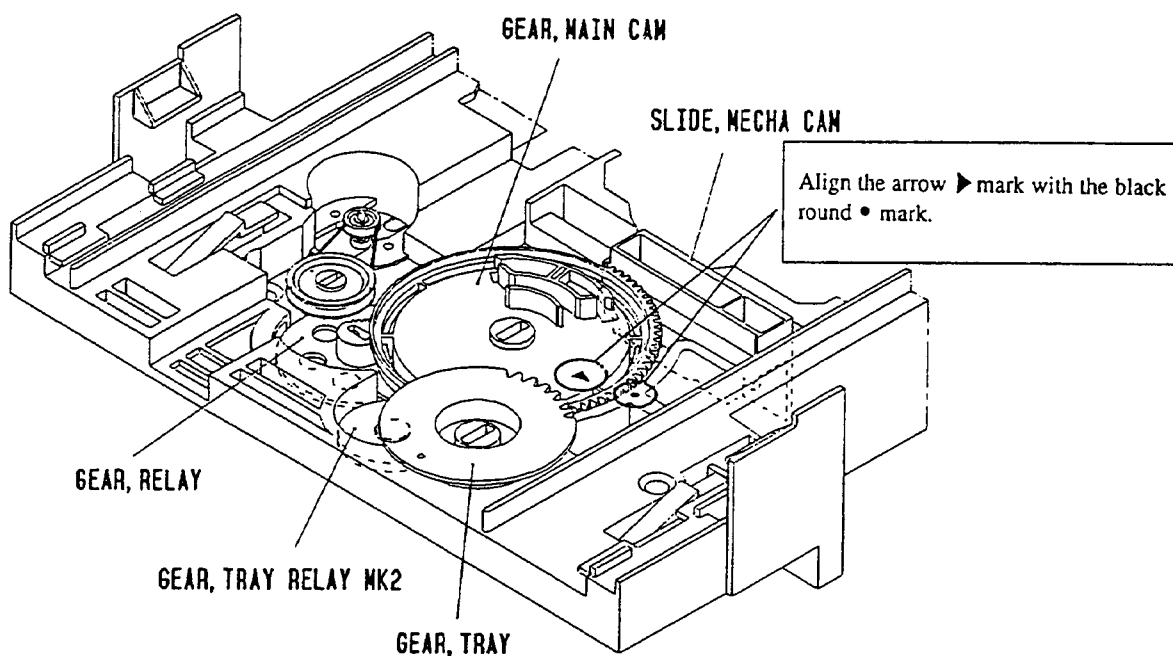
DERIVATION NAME

- G: Supporting the CD graphic feature
D: Digital output function
F: CD WINDOW Flash function (LED: AMBER/GREEN)
R: Round Tray
WR: With out Video CD and CD graphic board.
V3L: Supporting the video CD function PAL
V4L: Supporting the video CD function PAL
V5: Supporting the video CD function

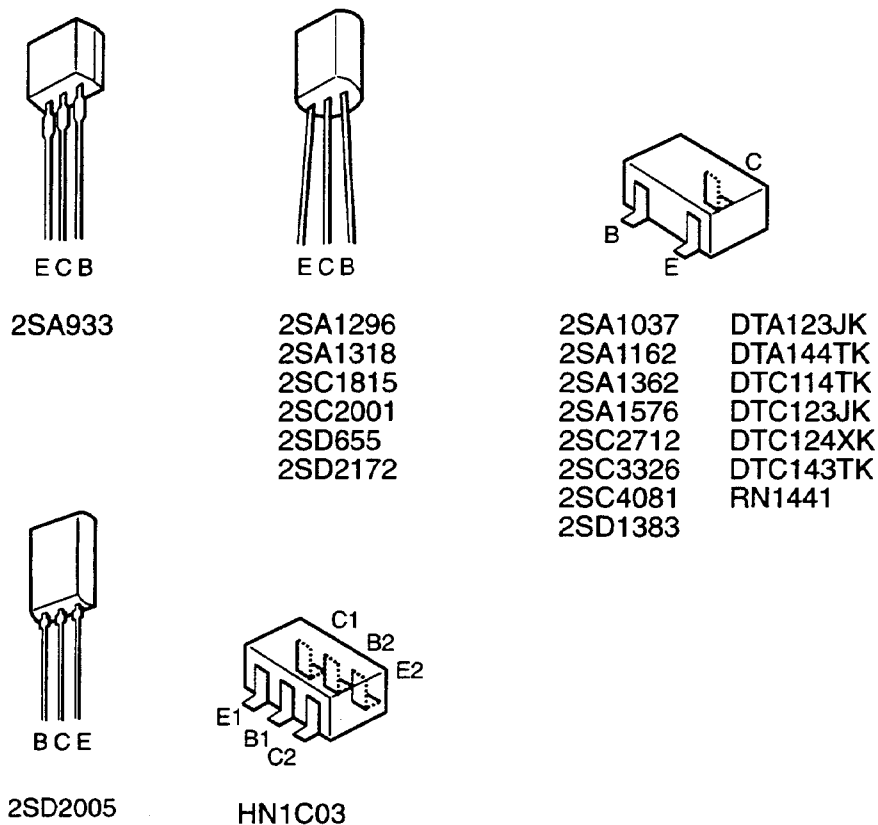
How to Adjust the Rotating Phase of the Gear, Main Cam

- 1) Push down the hooking catch of the CHAS. MECH, and remove the TRAY.
- 2) Align the arrow mark of the Gear, Main Cam with the black round mark of the CHAS. MECHA as shown below.
- 3) Confirm that the Slide, Mech Cam is located in the right position, then insert the TRAY gently.

Caution: If the rotating phase of the Gear, Main Cam is incorrectly adjusted, the chucking operation and tray movement will have malfunction.



TRANSISTOR ILLUSTRATION



4ZG-1

ELECTRICAL MAIN PARTS LIST

DESCRIPTION で判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	カンリ NO.	DESCRIPTION	REF. NO.	PART NO.	カンリ NO.	DESCRIPTION
IC	SC-L48-000-000		IC, CL480<V3L>		89-327-125-089		C-TR, 2SC2712GR<EXCEPT WR>
	S4-730-42X-010		IC, HD6473042F16(5EULF6)<V4L>		89-112-955-089		TR, 2SA1296GR<EXCEPT WR>
	SC-XD1-178-Q00		IC, CXD1178Q<V3L>		87-026-608-089		C-TR, DTC 123 JK<F>
	SA-T27-C51-2R1		IC, AT27C512R-15JC<V3L>		89-324-585-010		TR, 2SC2458<V3L>
	SX-D11-86X-010		IC, CXD1186CR(5EUNFC)<V4L>		89-333-266-089		C-TR, 2SC3326B<EXCEPT V5, WR>
	SC-008-K81-R10		IC, BR6265AF-10LL(5EUMFS)<V4L>		87-026-580-089		C-TR, DTA123JK<EXCEPT WR>
	ST-C51-425-6BJ		IC, TC514256BJ-70<V3L>		87-026-470-089		TR, HN1C03 F B<V5>
	SC-032-K81-MA0		IC, M5M5256CFP-70LL(5EUMFS)<V4L>		89-318-155-089		TR, 2SC1815 GR<V5>
	87-001-948-080		IC, PST572CMT(5EUBFP)<V4L>	DIODE			
	SD-493-07X-010		IC, HD49307(5EUNFH)<V4L>				
	SM-C68-MC7-05C		IC, MC68HC705C8ACP<V3L>		S0-041-480-000		DIODE, 1N4148<V3L>
	87-002-259-080		IC, uPD6376GS<V3L>		S1-305-700-283		DIODE, DA115(5EDQDD)<V4L>
	87-001-607-080		IC, BA4558F<V3L>		S0-240-010-000		DIODE, 1N4001<V3L>
	82-NV1-628-080		IC, CXA1645M(5EUBFC)<V3L, V4L>		SA-P20-2UX-010		DIODE, DAP202U(5EDQDD)<V4L>
	SP-D63-210-010		IC, UPD63210GT-E1(5EUNFU)<V4L>		87-002-608-089		DIODE, DSF10TC<V4L>
	SS-N74-HCU-04D		IC, SN74HCU04DR<V3L>		87-017-430-090		DIODE, RK14<V3L>
	S1-010-XXX-010		IC, UPD61010AGD-LBD(5EULF6)<V4L>		87-020-465-089		DIODE, ISS133<EXCEPT V5, WR>
	SC-170-CXX-010		IC, TC170C100AF-001(5EUKFT)<V4L>		SM-TZ2-7B0-000		ZENER, MTZ2.7B<V3L>
	SC-256-KG1-T10		IC, TC514260BJ-70(5EULMD)<V4L>		87-020-027-089		C-DIODE 1SS184<V5>
	SC-000-002-000		IC, TC514260BJ-70(5EULMD)<V4L>		87-A40-180-049		C-DIODE SB07-015 C<V5>
	SL-C29-32X-010		IC, TLC2932IPW(5EUNFT)<V4L>		87-A40-196-089		C-ZENER UDZ6.2 B<V5>
	87-017-745-019		IC, CXA1782BQ<EXCEPT V5, WR>	MAIN VCD C. B<V3L, V4L>			
	87-002-783-110		IC, CXD2500BQ<EXCEPT WR>				
	87-A20-257-049		IC, BA6791FP<V5>	C101	87-012-140-089		C-CAP, S 470P-50 CH<EXCEPT WR>
	87-070-120-049		IC, BA6897 FP<EXCEPT V5, WR>	C102	87-010-194-089		C-CAP, S 0.047-25 F
	87-070-429-019		IC, NJM2244L<EXCEPT V5, WR>	C103	87-010-178-089		C-CAP, S 1000P-50 B
	87-002-532-019		IC, PQ05RF11<V5>	C104	87-012-156-089		C-CAP, S 220P-50 CH
	87-017-825-019		IC, GP1F32T<D, V5>	C105	87-010-384-089		CAP, E 100-25 SME
	87-001-873-019		IC, LB1644<V5>	C106	87-010-196-089		C-CAP, S 0.1-25 F
	84-ZG1-639-010		C-IC, ME89627<V5>	C107	87-010-314-089		C-CAP, S 22P-50 CH
	ST-C74-HC2-570		IC, TC74HC257<V3L>	C108	87-010-314-089		C-CAP, S 22P-50 CH
	83-NFT-618-010		IC, UPD78044BGF<V3L>	C110	87-010-221-089		CAP, E 470-10 11L
	85-MAR-614-010		IC, UPD78044BGF-025<V4L>	C111	87-010-320-089		C-CAP, S 68P-50 CH
	87-070-430-019		IC, LA6530<EXCEPT V5, WR>	C112	87-010-196-089		C-CAP, S 0.1-25 F<V4L>
	87-017-543-089		IC, PST 600D<V5>	C112	87-016-463-089		C-CAP, S 0.33-16 B<V3L>
	87-A20-255-049		C-IC, SN74LV373NS<V5>	C113	87-010-260-089		CAP, E 47-25 SME
	87-A20-251-049		C-IC, BR6265BF-N10SL<V5>	C114	87-010-498-049		CAP, E 10-16 GAS
	87-A20-252-049		C-IC, SN74LV00NS<V5>	C115	87-010-498-049		CAP, E 10-16 GAS<G>
	87-A20-253-049		C-IC, SN74LV04NS<V5>	C116	87-010-196-089		C-CAP, S 0.1-25 F
	87-A20-254-049		C-IC, SN74LV32NS<V5>	C117	87-010-197-089		C-CAP, S 0.01-25 B
	87-A20-244-010		C-IC, CL484<V5>	C118	87-010-553-049		CAP, E 47-16 GAS<V4L>
	87-020-881-089		IC, NJM78L05A<EXCEPT V5, WR>	C119	87-010-553-049		CAP, E 47-16 GAS
	87-A20-200-040		C-IC, HM514260CJ7/CLJ7<V5>	C120	87-010-197-089		C-CAP, S 0.01-25 B
	87-017-888-089		IC, NJM4558MD<V4L>	C121	87-010-384-089		CAP, E 100-25 SME<V4L>
	84-ZG1-640-049		C-IC, LH5317<V5>	C122	87-010-320-089		C-CAP, S 68P-50 CH<D>
	87-A20-256-049		C-IC, PQ20VZ5U<V5>	C123	87-010-401-089		CAP, E 1-50 SME
	87-A20-247-019		C-IC, BU1417AK<V5>	C124	87-A10-011-019		CAP, E 2200-25 SMG
	87-017-802-010		IC, LC7872E<G>	C125	87-010-322-089		C-CAP, S 100P-50 CH
	87-A20-248-049		C-IC, BU2173F<V5>	C126	87-010-178-089		C-CAP, S 1000P-50 B
	87-017-803-010		IC, LC32464P-80<G>	C127	87-010-314-089		C-CAP, S 22P-50 CH<G>
	87-A20-258-040		C-IC, SM5877AM<V5>	C128	87-010-320-089		C-CAP, S 68P-50 CH
				C129	87-010-263-089		CAP, E 100-10 SME<D>
				C130	87-010-197-089		C-CAP, S 0.01-25 B<D>
TRANSISTOR	SC-408-1XX-010		TR, 2SC4081(5EQQ2S)<V4L>	C131	87-010-197-089		C-CAP, S 0.01-25 B
	S1-441-XXX-010		TR, RN1441-A(5EQQRN)<V4L>	C132	87-010-196-089		C-CAP, S 0.1-25 F
	SA-157-6XX-010		TR, 2SA1576(5EQQ2S)<V4L>	C133	87-010-196-089		C-CAP, S 0.1-25 F
	89-111-625-089		C-TR, 2SA1162GR<EXCEPT V5, WR>	C134	87-010-196-089		C-CAP, S 0.1-25 F
	87-026-237-089		C-TR, DTC124XK<EXCEPT WR>	C135	87-010-196-089		C-CAP, S 0.1-25 F
	87-327-125-089		C-TR, 2SC2712 GR<V5>	C136	87-010-154-089		C-CAP, S 10P-50 CH<V4L>
	89-113-625-089		C-TR 2SA 1362 GR(TAPG)<V5>	C201	87-010-382-089		CAP, E 22-25 SME
				C202	87-010-197-089		C-CAP, S 0.01-25 B

REF. NO.	PART NO.	カンリ NO.	DESCRIPTION	REF. NO.	PART NO.	カンリ NO.	DESCRIPTION
C203	87-010-382-089		CAP,E 22-25 SME	C205	87-010-316-089		C-CAP,S 33P-50 CH
C204	87-010-381-089		CAP,E 330-16 SME	C206	87-010-499-049		CAP,E 22-6.3 GAS
C205	87-010-196-089		C-CAP,S 0.1-25 F	C207	87-010-197-089		C-CAP,S 0.01-25 B
C206	87-010-196-089		C-CAP,S 0.1-25 F	C208	87-010-197-089		C-CAP,S 0.01-25 B
C207	87-010-498-049		CAP,E 10-16 GAS<F>	C209	87-010-197-089		C-CAP,S 0.01-25 B
C208	87-010-405-089		CAP,E 10-50 SME	C210	87-010-197-089		C-CAP,S 0.01-25 B
C301	87-010-197-089		C-CAP,S 0.01-25 B	C211	87-010-197-089		C-CAP,S 0.01-25 B
C306	87-010-381-089		CAP,E 330-16 SME<V4L>	C212	87-010-318-089		C-CAP,S 47P-50 CH
C307	87-010-553-049		CAP,E 47-16 GAS	C301	87-010-549-049		CAP,E 47-6.3 GAS
C308	87-010-498-049		CAP,E 10-16 GAS	C302	87-010-549-049		CAP,E 47-6.3 GAS
C309	87-010-404-089		CAP,E 4.7-50 SME<V4L>	C304	87-010-197-089		C-CAP,S 0.01-25 B
C310	87-010-404-089		CAP,E 4.7-50 SME<V4L>	C305	87-010-197-089		C-CAP,S 0.01-25 B
C311	87-012-140-089		C-CAP,S 470P-50 CH<V4L>	C306	87-010-197-089		C-CAP,S 0.01-25 B
C312	87-012-140-089		C-CAP,S 470P-50 CH<V4L>	C307	87-010-197-089		C-CAP,S 0.01-25 B
C313	87-010-384-089		CAP,E 100-25 SME<V4L>	C308	87-010-197-089		C-CAP,S 0.01-25 B
C315	87-010-404-089		CAP,E 4.7-50 SME<V4L>	C309	87-010-197-089		C-CAP,S 0.01-25 B
C316	87-010-404-089		CAP,E 4.7-50 SME<V4L>	C310	87-010-197-089		C-CAP,S 0.01-25 B
C317	87-010-197-089		C-CAP,S 0.01-25 B	C311	87-010-197-089		C-CAP,S 0.01-25 B
C318	87-010-197-089		C-CAP,S 0.01-25 B	C312	87-010-197-089		C-CAP,S 0.01-25 B
C401	87-010-405-089		CAP,E 10-50 SME<G>	C313	87-010-318-089		C-CAP,S 47P-50 CH
C402	87-010-314-089		C-CAP,S 22P-50 CH<G>	C314	87-010-196-089		C-CAP,S 0.1-25 F
C403	87-010-315-089		C-CAP,S 27P-50 CH<G>	C315	87-010-196-089		C-CAP,S 0.1-25 F
C406	87-010-384-089		CAP,E 100-25 SME<G>	C316	87-010-549-049		CAP,E 47-6.3 GAS
C407	87-010-384-089		CAP,E 100-25 SME<G>	C317	87-010-314-089		C-CAP,S 22P-50 CH
C408	87-010-196-089		C-CAP,S 0.1-25 F<G>	C319	87-010-314-089		C-CAP,S 22P-50 CH
C409	87-010-196-089		C-CAP,S 0.1-25 F<G>	C320	87-010-196-089		C-CAP,S 0.1-25 F
CON6	83-NFT-628-019		CONN ASSY, 8P<V3L>	C321	87-010-550-049		CAP,E 100-6.3 GAS
EM101	87-008-474-089		F-BEAD, EMI BL02RN1	C322	87-010-197-089		C-CAP,S 0.01-25 B
EM102	87-008-474-089		F-BEAD, EMI BL02RN1	C323	87-010-550-049		CAP,E 100-6.3 GAS
FC1	85-NFT-612-019		FF-CABLE, 30P-1.0<V4L>	C324	87-010-197-089		C-CAP,S 0.01-25 B
FC2	88-912-131-219		FF-CABLE, 12P 1.25	C401	87-010-197-089		C-CAP,S 0.01-25 B
FC3	85-MAR-617-019		FF-CABLE, 6P-1.25	C402	87-010-550-049		CAP,E 100-6.3 GAS
J101	87-009-502-019		JACK, PIN 1PY EARTH	C403	87-010-197-089		C-CAP,S 0.01-25 B
L101	87-003-149-089		COIL, 47UH	C404	87-012-140-089		C-CAP,S 470P-50 CH
L102	87-003-149-089		COIL, 47UH	C405	87-010-322-089		C-CAP,S 100P-50 CH
L103	87-003-143-089		COIL, 4.7UH	C406	87-012-140-089		C-CAP,S 470P-50 CH
L401	87-003-149-089		COIL, 47UH<G>	C407	87-016-350-049		CAP,E 470-4 MA GAS
L402	87-003-149-089		COIL, 47UH<G>	C408	87-010-196-089		C-CAP,S 0.1-25 F
M401	87-045-305-019		MOTOR, RF-500TB	C409	87-010-197-089		C-CAP,S 0.01-25 B
PR101	87-026-689-089		PROTECTOR, 1A 60V 491	C410	87-010-197-089		C-CAP,S 0.01-25 B
SW201	87-036-109-019		SW, PUSH SPPB 61	C411	87-010-550-049		CAP,E 100-6.3 GAS
SW202	87-036-109-019		SW, PUSH SPPB 61	C412	87-010-197-089		C-CAP,S 0.01-25 B
X101	87-030-270-089		VIB, XTAL 16.9344MHZ	C413	87-010-314-089		C-CAP,S 22P-50 CH
X201	89-MX1-704-089		CERA LOCK(MU)3.9MHZ	C414	87-010-316-089		C-CAP,S 33P-50 CH
X401	80-JUC-602-089		VIB, XTAL 17.73MHZ<G>	C415	87-010-499-049		CAP,E 22-6.3 GAS
MAIN VCD C.B<V5>				C416	87-010-197-089		C-CAP,S 0.01-25 B
C101	87-010-197-089		C-CAP,S 0.01-25 B	C418	87-010-197-089		C-CAP,S 0.01-25 B
C102	87-010-550-049		CAP,E 100-6.3 GAS	C420	87-010-196-089		C-CAP,S 0.1-25 F
C103	87-010-318-089		C-CAP,S 47P-50 CH	C421	87-012-140-089		C-CAP,S 470P-50 CH
C104	87-010-197-089		C-CAP,S 0.01-25 B	C422	87-010-184-089		C-CAP,S 3300P-50 B
C105	87-010-318-089		C-CAP,S 47P-50 CH	C422	87-010-184-089		C-CAP,S 3300P-50 B
C106	87-010-549-049		CAP,E 47-6.3 GAS	C423	87-010-175-089		C-CAP,S 560P-50 SL
C107	87-012-156-089		C-CAP,S 220P-50 CH	C424	87-010-317-089		C-CAP,S 39P-50 CH
C108	87-010-184-089		C-CAP,S 3300P-50 B	C425	87-012-140-089		C-CAP,S 470P-50 CH
C109	87-010-194-089		C-CAP,S 0.047-25 F	C501	87-010-549-049		CAP,E 47-6.3 GAS
C110	87-012-140-089		C-CAP,S 470P-50 CH	C502	87-010-196-089		C-CAP,S 0.1-25 F
C111	87-010-197-089		C-CAP,S 0.01-25 B	C503	87-010-318-089		C-CAP,S 47P-50 CH
C112	87-016-461-089		C-CAP,S 0.47-16 F	C505	87-010-313-089		C-CAP,S 18P-50 CH
C113	87-010-196-089		C-CAP,S 0.1-25 F	C506	87-010-313-089		C-CAP,S 18P-50 CH
C114	87-010-550-049		CAP,E 100-6.3 GAS	C507	87-010-197-089		C-CAP,S 0.01-25 B
C115	87-010-197-089		C-CAP,S 0.01-25 B	C508	87-010-178-089		C-CAP,S 1000P-50 B
C116	87-010-561-049		CAP,E 100-16 GAS	C509	87-010-178-089		C-CAP,S 1000P-50 B
C117	87-010-562-049		CAP,E 220-10 GAS	C510	87-010-178-089		C-CAP,S 1000P-50 B
C118	87-010-553-049		CAP,E 47-16 GAS	C511	87-010-178-089		C-CAP,S 1000P-50 B
C119	87-010-197-089		C-CAP,S 0.01-25 B	C512	87-010-498-049		CAP,E 10-16 GAS
C120	87-010-555-089		CAP,E 100-10 GAS	C513	87-010-498-049		CAP,E 10-16 GAS
C121	87-010-197-089		C-CAP,S 0.01-25 B	C514	87-010-318-089		C-CAP,S 47P-50 CH
C201	87-010-499-049		CAP,E 22-6.3 GAS	C515	87-010-318-089		C-CAP,S 47P-50 CH
C202	87-010-197-089		C-CAP,S 0.01-25 B	C516	87-010-196-089		C-CAP,S 0.1-25 F
C203	87-010-196-089		C-CAP,S 0.1-25 F	C599	87-010-196-089		C-CAP,S 0.1-25 F
C204	87-010-316-089		C-CAP,S 33P-50 CH	C601	87-010-561-049		CAP,E 100-16 5L
				C602	87-010-432-049		CAP,E 10-16 OS

REF. NO.	PART NO.	カンリ NO.	DESCRIPTION	REF. NO.	PART NO.	カンリ NO.	DESCRIPTION
C603	87-010-196-089		C-CAP,S 0.1-25 F	C136	87-010-197-089		C-CAP,S 0.01-25 B
C604	87-010-196-089		C-CAP,S 0.1-25 F	C137	87-010-805-089		C-CAP,S 1-16F
C605	87-A10-222-049		CAP,E 22-10 OS	C138	87-010-178-089		C-CAP,S 1000P-50 B
C606	87-010-196-089		C-CAP,S 0.1-25 F	C140	87-010-805-089		C-CAP,S 1-16F<EXCEPT V5>
C607	87-012-140-089		C-CAP,S 470P-50 CH	FC4	85-NFT-611-119		FF-CABLE,16P-1.0
C608	87-010-196-089		C-CAP,S 0.1-25 F	M101	87-045-356-019		MOT,RF-310T A 30
J401	87-009-502-019		JACK,PIN 1PY EARTH	M102	87-045-358-019		MOT,RF-310T A 43
L101	87-005-781-089		C-COIL,47UH FLC32C	R140	87-022-364-089		C-RES,S82K-1/10WF
L201	87-005-781-089		C-COIL,47UH FLC32C	R141	87-022-363-089		C-RES,S 68K-1/10W F
L202	87-005-781-089		C-COIL,47UH FLC32C	R142	87-022-363-089		C-RES,S 68K-1/10W F
L301	87-005-781-089		C-COIL,47UH FLC32C	R143	87-022-363-089		C-RES,S 68K-1/10W F
L302	87-005-781-089		C-COIL,47UH FLC32C	R144	87-022-363-089		C-RES,S 68K-1/10W F
L303	87-005-781-089		C-COIL,47UH FLC32C	R145	87-022-364-089		C-RES,S82K-1/10WF
L401	87-005-196-089		COIL,100H	SFR101	87-024-175-089		SFR,47K DIA6 V
L402	87-005-781-089		C-COIL,47UH FLC32C	SFR102	87-024-176-089		SFR,100K DIA6 V
L404	87-005-190-089		COIL,3.3UH	SFR103	87-024-175-089		SFR,47K DIA6 V
L405	87-005-189-089		COIL,2.7UH	SW101	87-036-340-019		SW,LEAF LSA-1121
L501	87-005-781-089		C-COIL,47UH FLC32C				
L601	87-005-469-089		COIL,4.7UH				
L602	87-A50-095-019		COIL,68UH	T-T C.B			
M201	87-045-305-019		MOTOR, RF-500TB	C401	87-018-214-089		CAP TC U 0.1-50 F
S101	87-036-109-019		SW,PUSH SPPE 61	FC401	84-ZGI-614-119		CABLE PFC 5P-1.25
S102	87-036-109-019		SW,PUSH SPPE 61	M401	87-045-364-019		MOTOR,(BCH3B14)
S201	87-A90-162-019		SW,SL 1-1-3 SSSU	PS401	87-026-573-019		P-SNSR,GPISS3V
X201	87-A70-027-089		VIB,XTAL 8MHZ 100PPM				
X401	87-A70-026-089		VIB,XTAL 13.5MHZ 50PPM	LED C.B<F>			
X501	87-030-270-089		VIB,XTAL 16.9344MHZ	LED101	87-070-200-089		LED,SLP636C-81-S-T1<F>
				LED102	87-017-350-080		LED,SEL1550CM<F>
				LED103	87-017-350-080		LED,SEL1550CM<F>
				LED104	87-070-200-089		LED,SLP636C-81-S-T1<F>
CD MECHA C.B<V3L,V4L,V5>							
C101	87-010-154-089		C-CAP,S 10P-50 CH<EXCEPT V5>				
C101	87-010-334-080		C-CAP,S 12P-50 CH<V5>				
C102	87-010-193-089		C-CAP,S 0.033-25 F<V5>				
C102	87-010-184-089		C-CAP,S 3300P-50 B<EXCEPT V5>				
C103	87-010-197-089		C-CAP,S 0.01-25 B<EXCEPT V5>				
C103	87-010-993-089		C-CAP,S 0.056-25<V5>				
C104	87-010-193-089		C-CAP,S 0.033-25 F<EXCEPT V5>				
C104	87-010-993-089		C-CAP,S 0.056-25<V5>				
C105	87-010-197-089		C-CAP,S 0.01-25 B				
C107	87-010-197-089		C-CAP,S 0.01-25 B<V5>				
C107	87-010-182-089		C-CAP,S 2200P-50 B<EXCEPT V5>				
C108	87-010-805-089		C-CAP,S 1-16F				
C109	87-010-322-089		C-CAP,S 100P-50 CH				
C110	87-010-198-089		C-CAP,S 0.022-25 B<EXCEPT V5>				
C110	87-010-993-089		C-CAP,S 0.056-25<V5>				
C111	87-010-551-089		CAP ELECT 33-10V SRE<EXCEPT V5>				
C111	87-010-499-049		CAP,E 22-6.3 GAS<V5>				
C112	87-010-322-089		C-CAP,S 100P-50 CH				
C113	87-010-196-089		C-CAP,S 0.1-25 F				
C114	87-010-197-089		C-CAP,S 0.01-25 B				
C115	87-010-196-089		C-CAP,S 0.1-25 F<EXCEPT V5>				
C115	87-012-141-089		C-CAP,S 0.22-16 F<V5>				
C116	87-010-182-089		C-CAP,S 2200P-50 B				
C117	87-010-196-089		C-CAP,S 0.1-25 F<EXCEPT V5>				
C117	87-012-141-089		C-CAP,S 0.22-16 F<V5>				
C118	87-010-196-089		C-CAP,S 0.1-25 F				
C119	87-010-193-089		C-CAP,S 0.033-25 F<V5>				
C119	87-010-196-089		C-CAP,S 0.1-25 F<EXCEPT V5>				
C120	87-010-549-089		CAP ELECT 47-6.3V				
C121	87-010-549-089		CAP ELECT 47-6.3V				
C122	87-010-495-089		CAP,E 2.2-35 5L<V5>				
C122	87-010-497-089		CAP,E 4.7-35 5L<EXCEPT V5>				
C123	87-010-549-089		CAP ELECT 47-6.3V				
C125	87-010-553-089		CAP,E 47-16				
C127	87-010-553-089		CAP,E 47-16				
C127	87-010-549-089		CAP,E 47-6.3 GAS				
C128	87-010-549-089		CAP ELECT 47-6.3V				
C129	87-010-182-089		C-CAP,S 2200P-50 B				
C131	87-010-196-089		C-CAP,S 0.1-25 F				
C133	87-010-196-089		C-CAP,S 0.1-25 F				
C134	87-010-196-089		C-CAP,S 0.1-25 F				
C135	87-010-196-089		C-CAP,S 0.1-25 F				

REF. NO.	PART NO.	カンリ NO.	DESCRIPTION
C151	87-010-549-010		CAP,E 47-6.3V(5ECEC0)
C152	87-016-155-010		CAP,E 1000-6.3V5ECER0)
C157	87-010-075-040		CAP,E 10-16V(5ECEC1)
CT1	S2-130-007-010		CAP,TRIMMER 30PF(5ECT04)
L1	S7-001-XXX-100		C-COIL,47UH(5ELQE4)
X1	S0-120-003-010		X*TAL,12.0000MHZ(5EXMA4)
X2	S0-177-343-010		X*TAL,17.73447MHZ(5EXMA4)

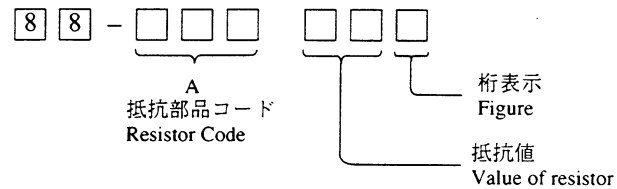
SUB C.B<V3L>

DRIVE C.B<WR>

M1	87-045-358-019	MOT,RF-310TA 43
M2	87-045-356-019	MOT,RF-310TA 30
SW1	87-A90-042-019	SW,LEAF MSW 17310 MVPO

○ チップ抵抗部品コード／CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding

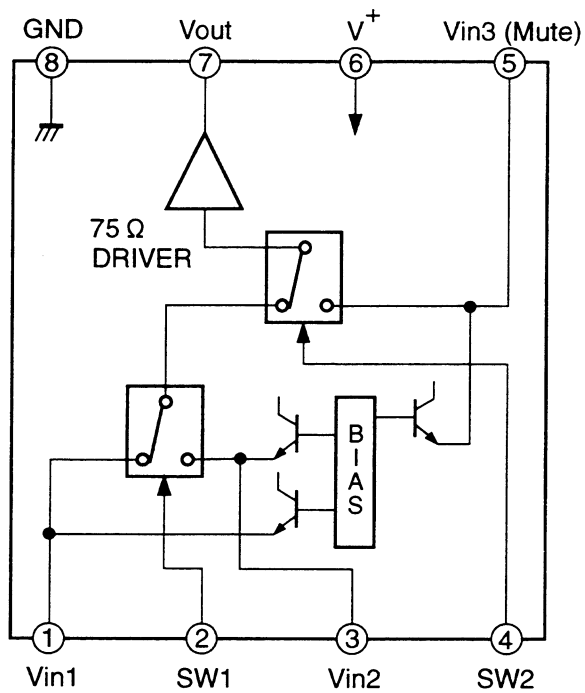


チップ抵抗
Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法／Dimensions (mm)				抵抗コード : A Resistor Code: A
				外形／Form	L	W	t	
1／16W	1608	±5%	CJ		1.6	0.8	0.45	108
1／10W	2125	±5%	CJ		2	1.25	0.45	118
1／8W	3216	±5%	CJ		3.2	1.6	0.55	128

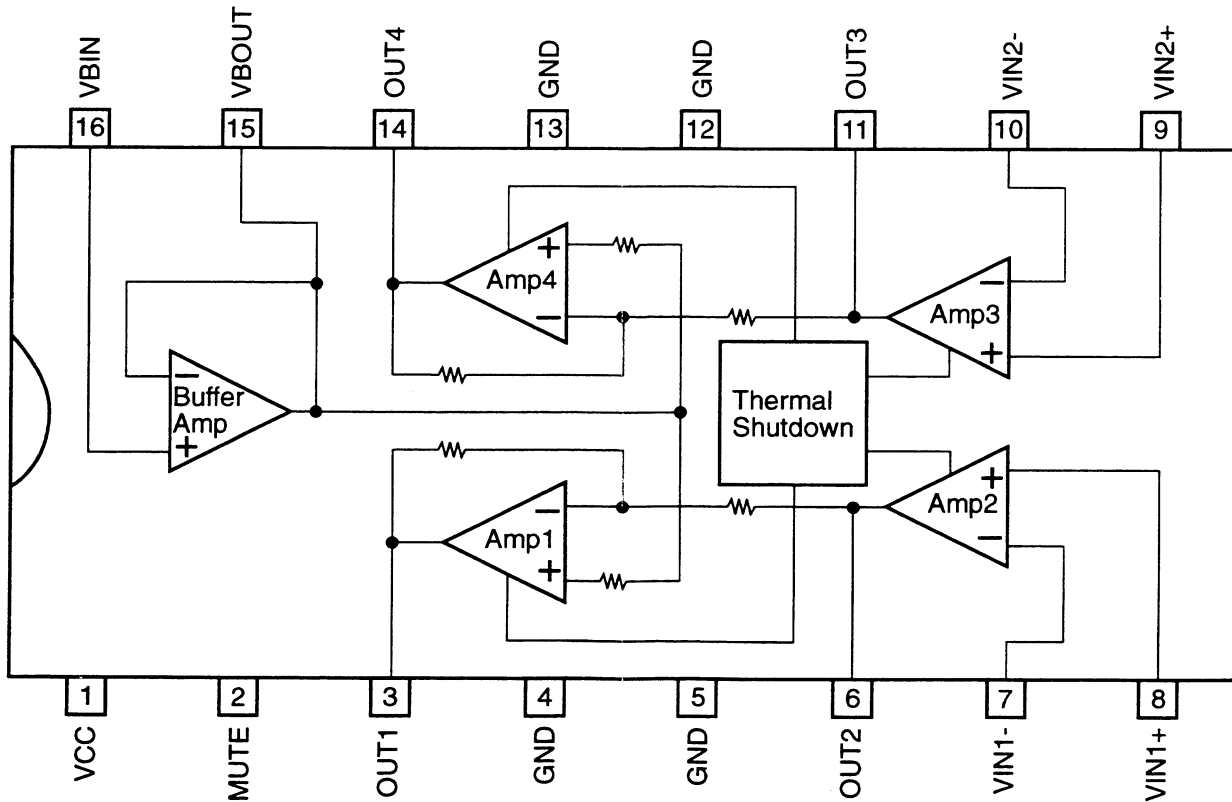
IC BLOCK DIAGRAM

IC, NJM2244L

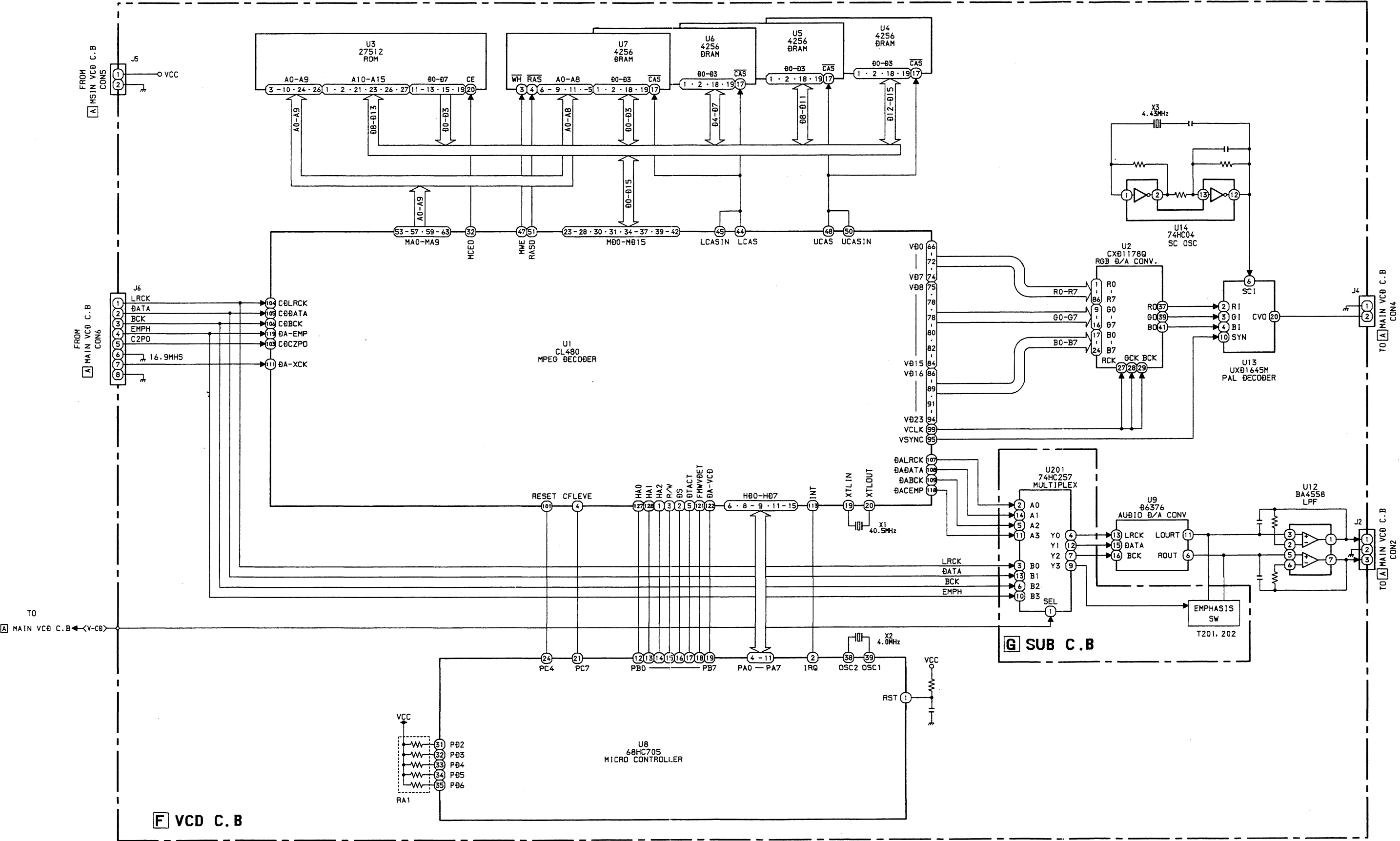


SW1	SW2	OUTPUT SIGNAL
L	L	Vin1
H	L	Vin2
L/H	H	Vin3

IC, LA6530



BLOCK DIAGRAM-2 (V3L: VCD)

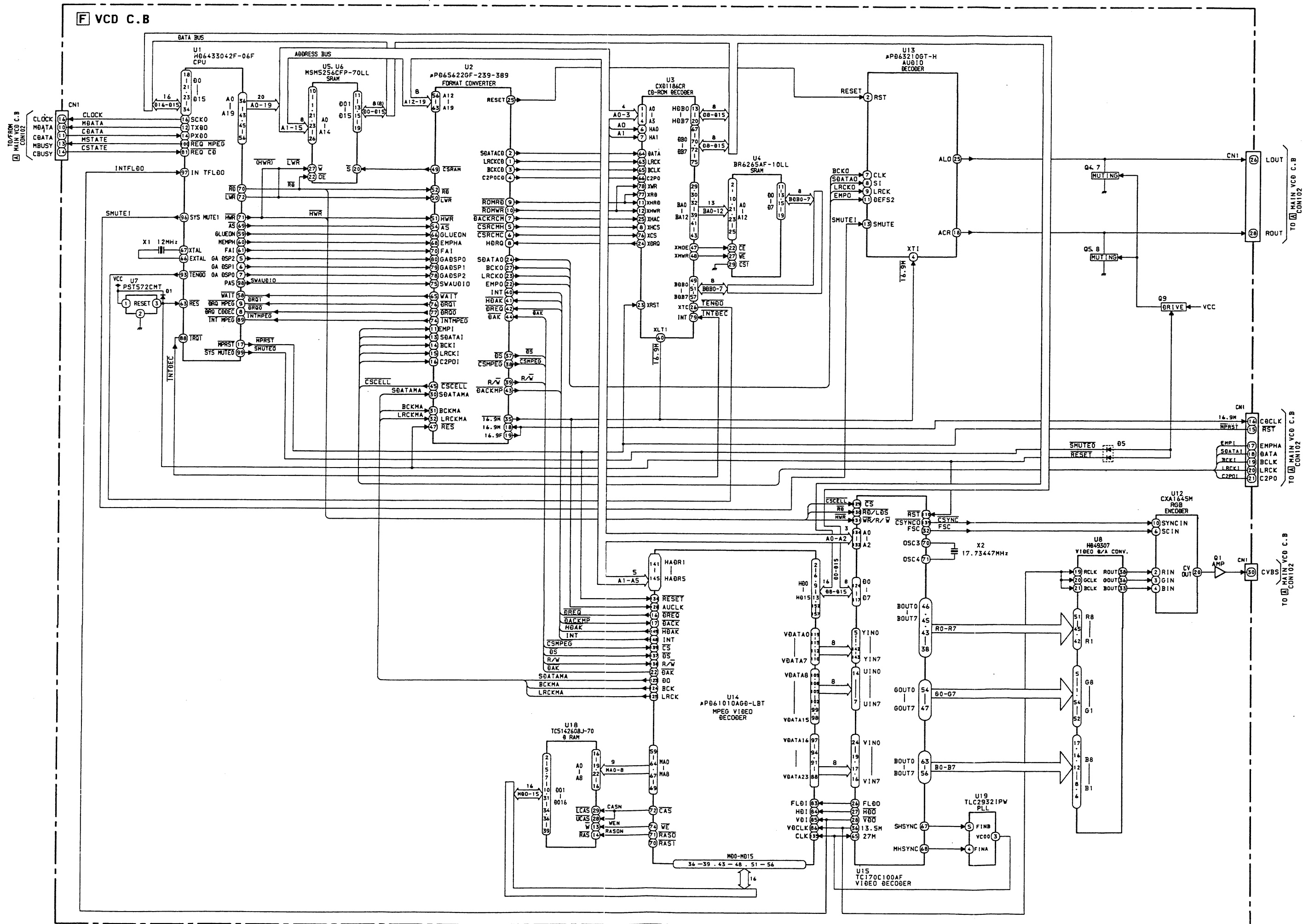


The diagram is a complex electronic schematic for a VCR, organized into four main functional blocks labeled A, B, C, and D.

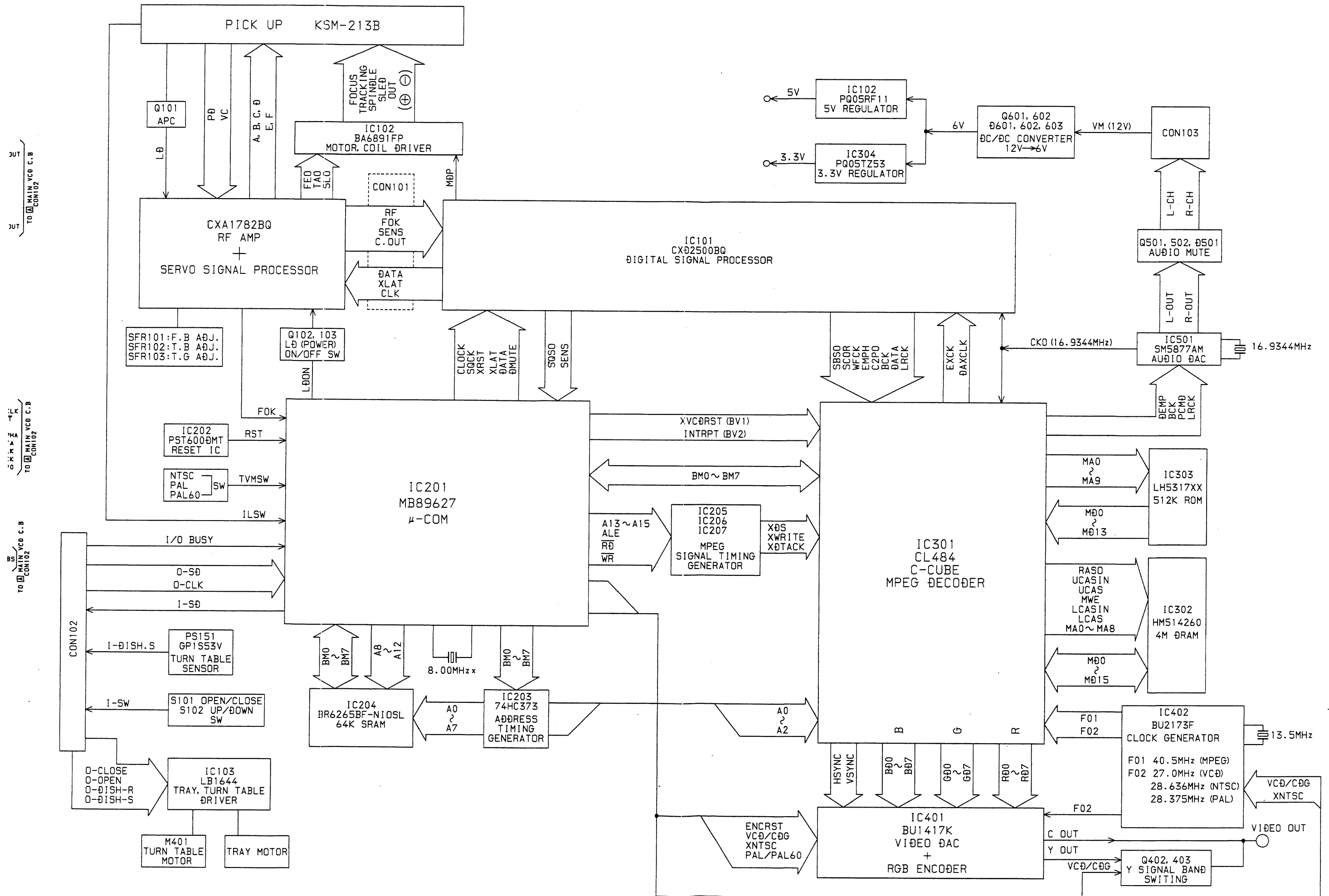
- Block A: MAIN VCD C.B.** This is the central control unit. It features a digital signal processor (IC101, CX02500) and a servo processor (IC102, BA6397FP). It handles RF signals, servo control, and video processing. Key components include a digital PLL (X101, 16.9344MHz), a CPU interface, and various control logic blocks like error correct, timing gen, and subcode proc. It also includes a motor driver (IC202, LA6530) for the tape transport.
- Block B: CD MECHA C.B.** This block controls the laser and tracking balance. It includes a laser drive (Q101), a tracking balance adjuster (SFR102), and a motor driver (IC102, BA6397FP). It also features a focus bias adjuster (SFR101) and a tracking balance adjuster (SFR103).
- Block C: T-T C.B.** This block controls the tape transport. It includes a photo sensor (PS401), a motor drive (IC202, LA6530), and a motor (M401).
- Block D: LED C.B.** This is a simple LED driver circuit for the VCR's display, consisting of an LED (LE0101-104) and a driver transistor (Q201).

The schematic includes numerous components such as resistors, capacitors, and integrated circuits, with detailed pin connections and signal paths. It also shows connections to other units like the main unit, front panel, and power supply.

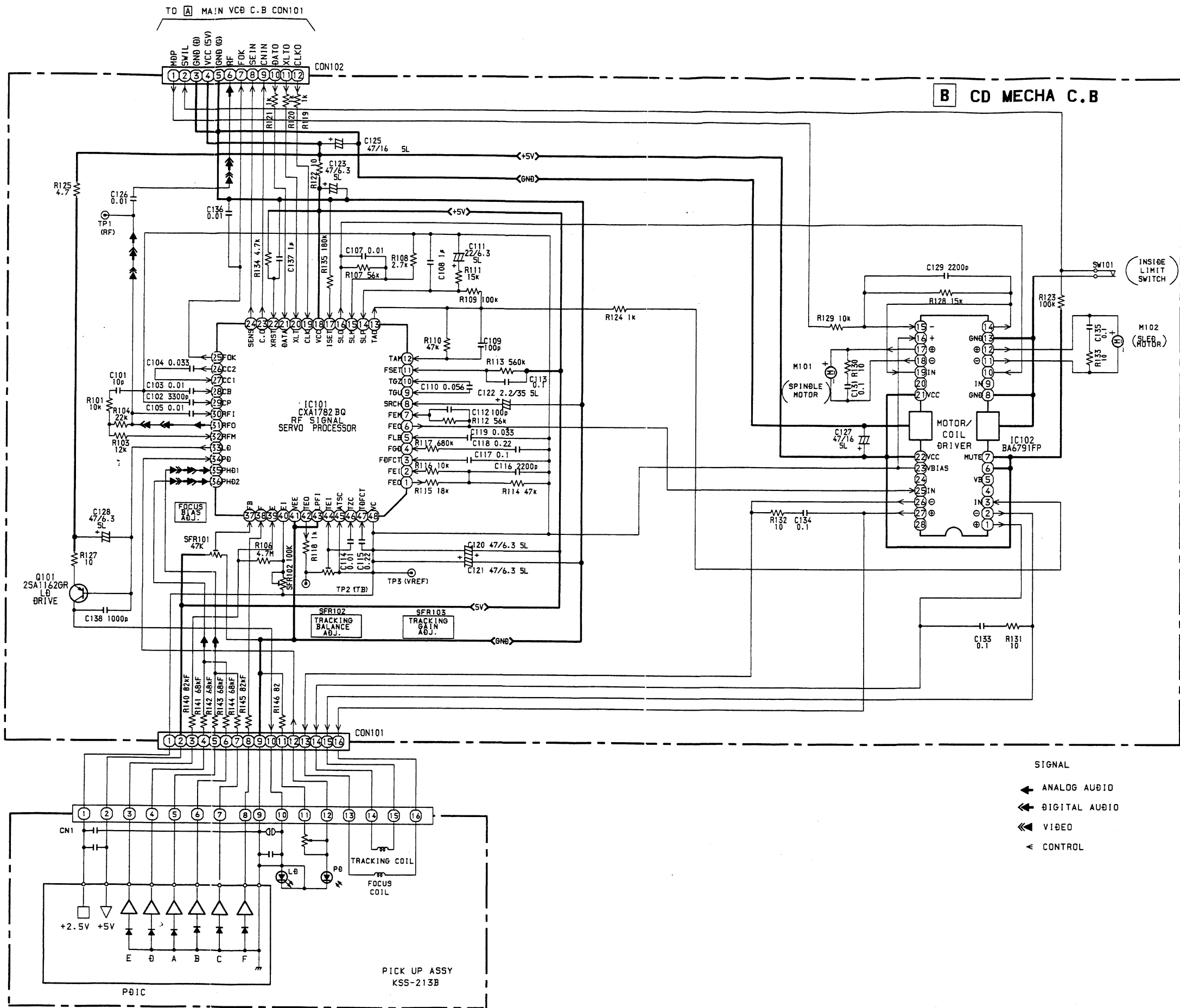
BLOCK DIAGRAM-4 (V4L: VCD)



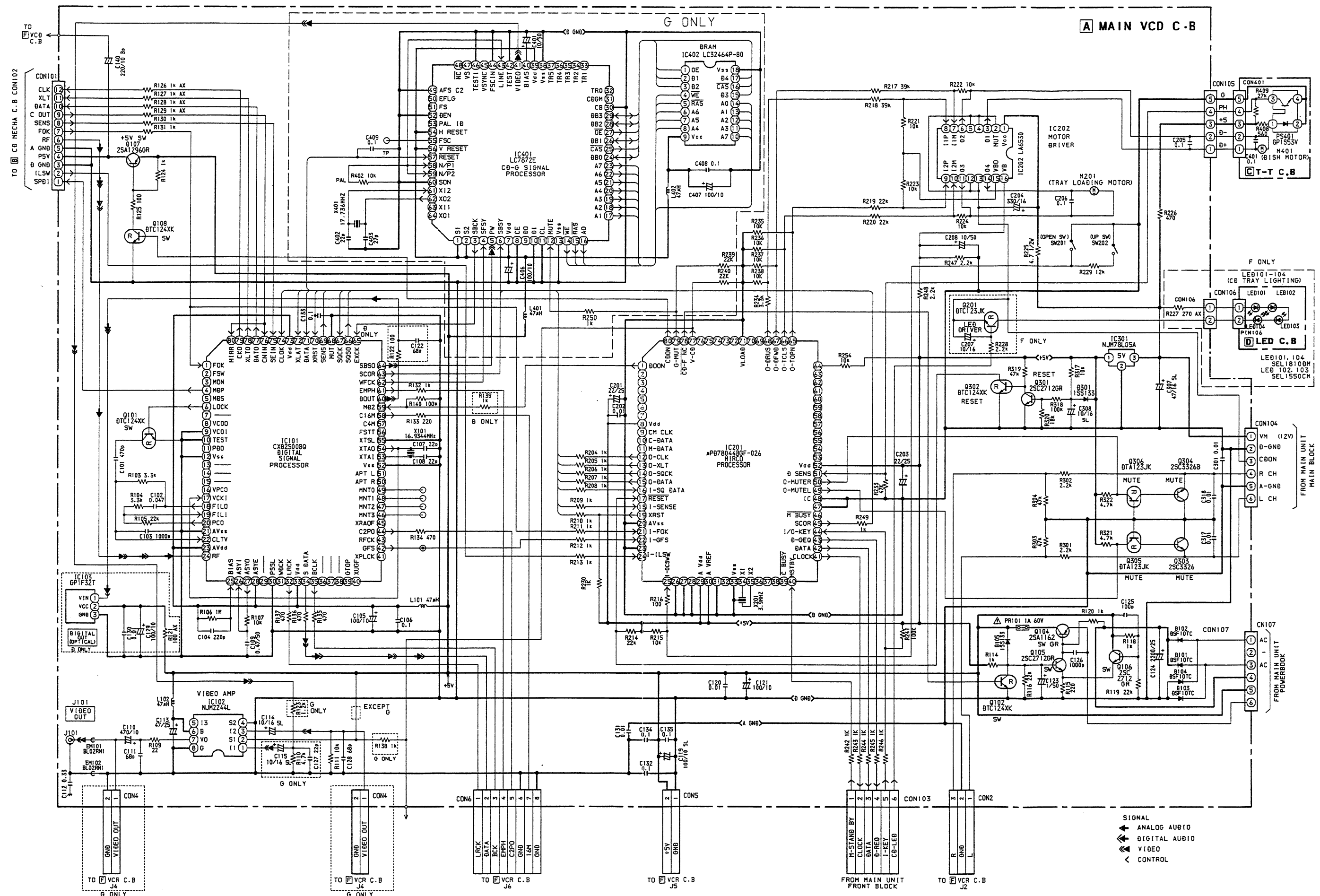
BLOCK DIAGRAM-5 (V5)



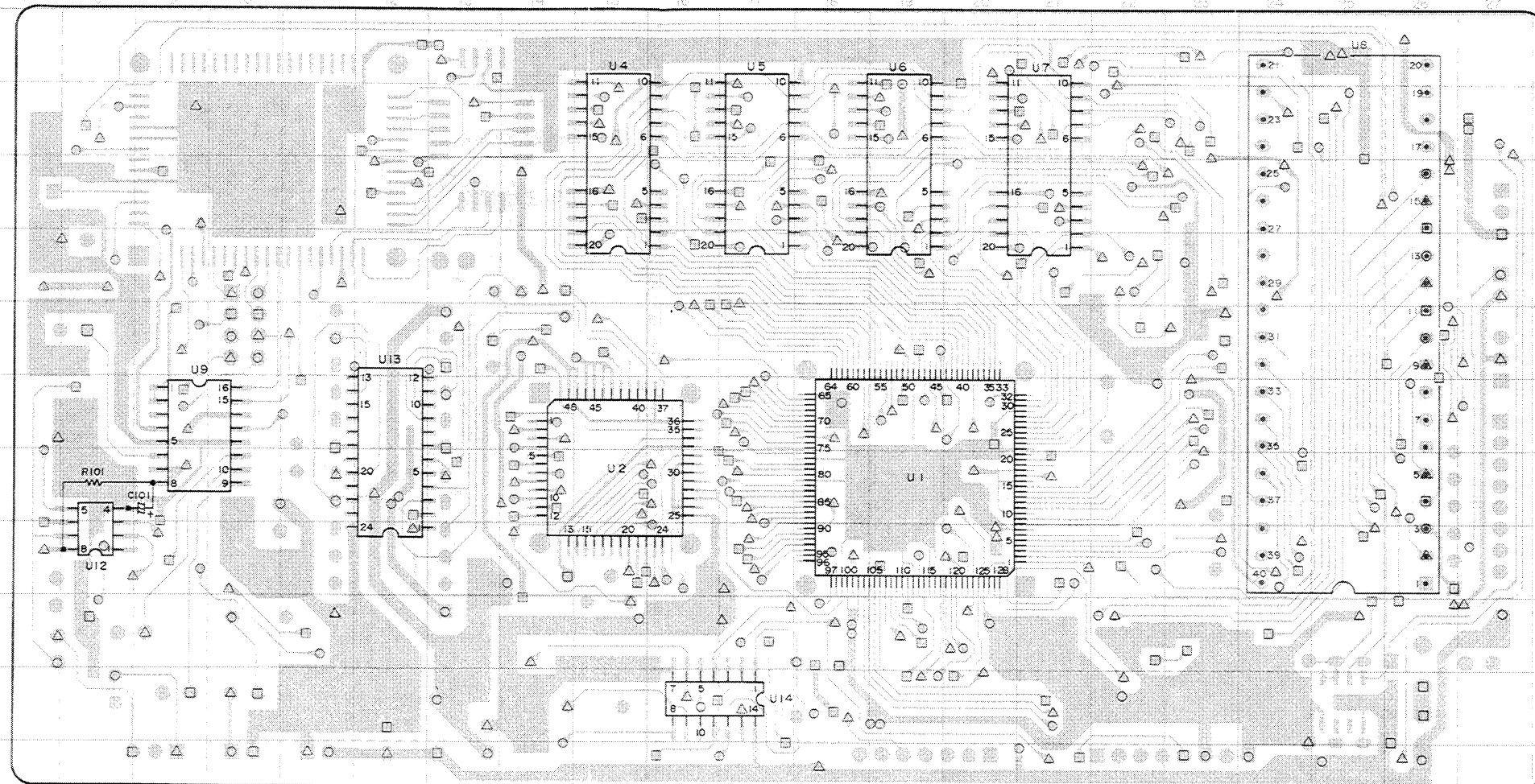
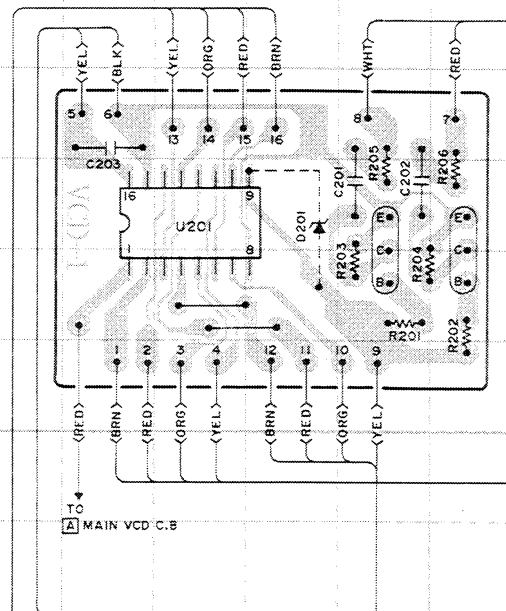




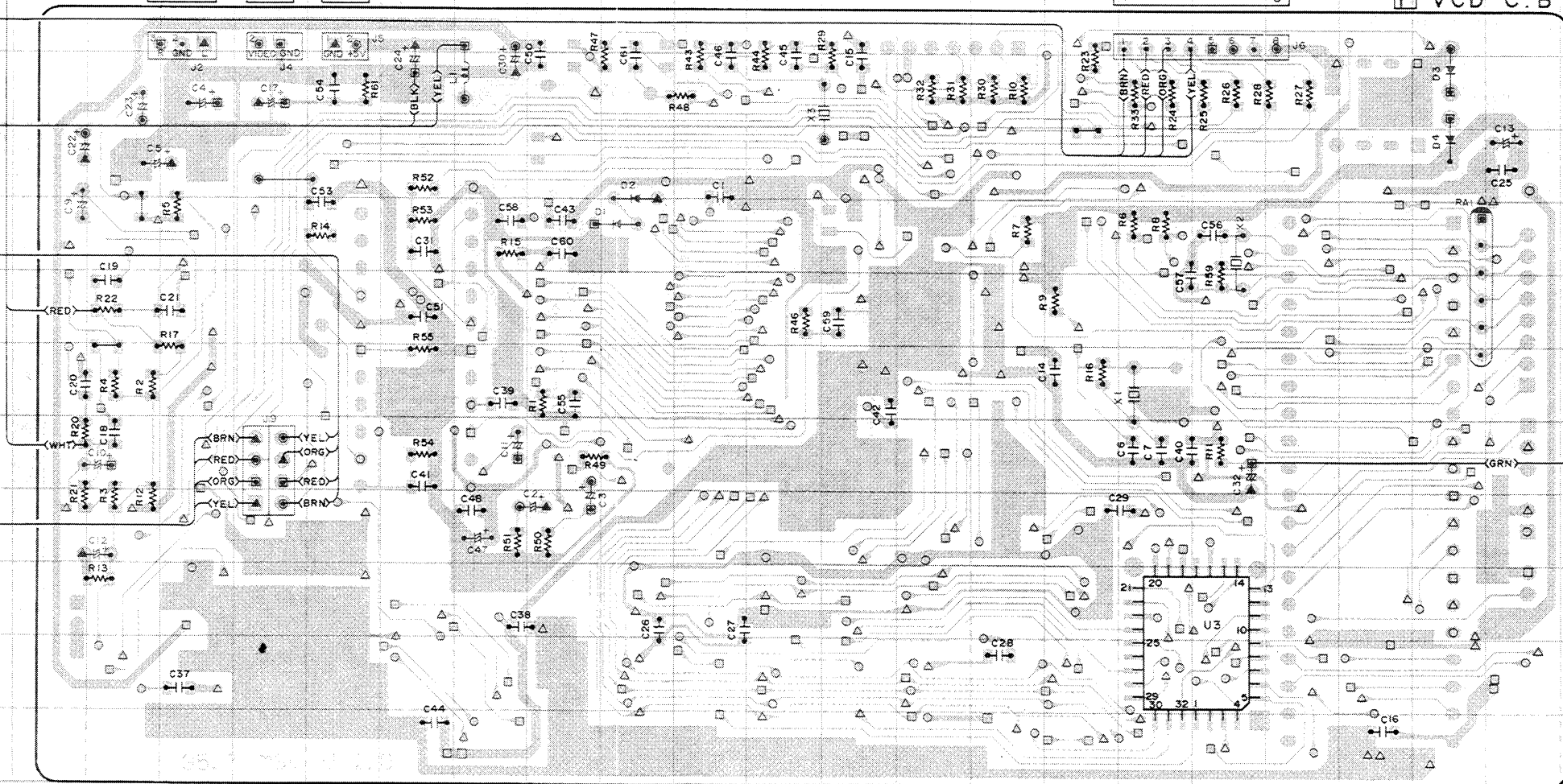
SCHEMATIC DIAGRAM-2 (V3L: MAIN VCD)

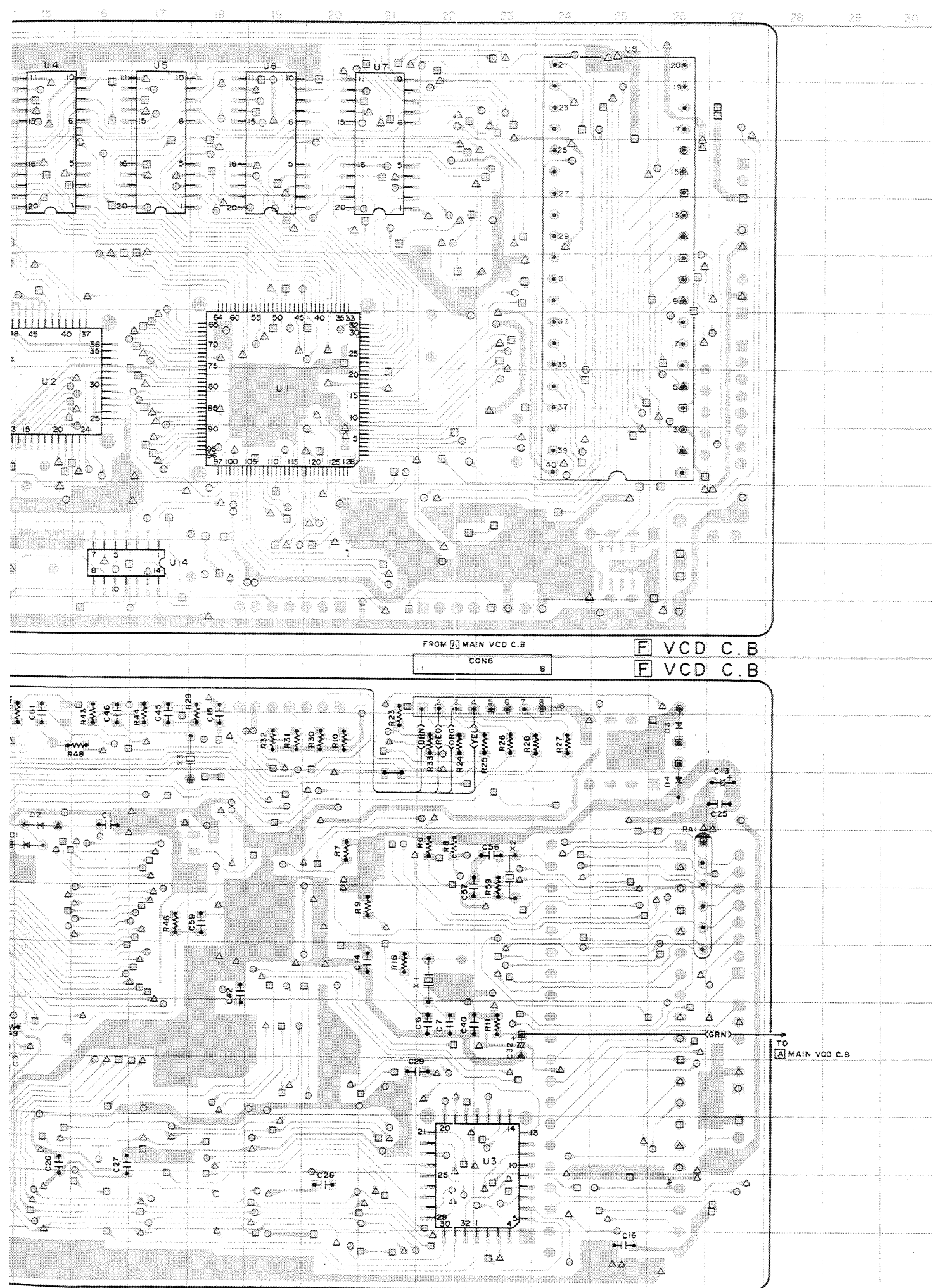


G SUB C.B



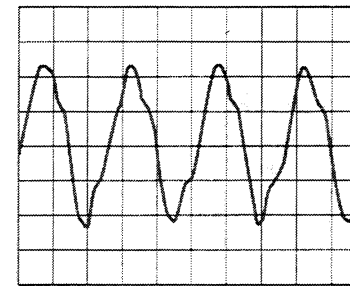
F VCD C.B
F VCD C.B



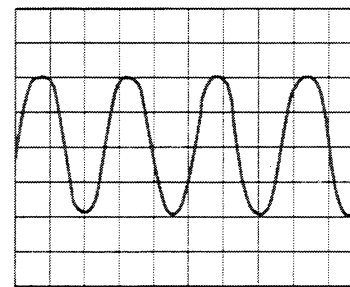


WAVE FORM

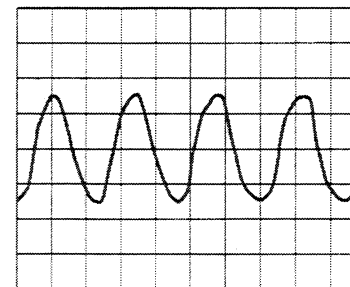
- ① U1 Pin 20 (XLT OUT) VOLT/DIV: 1V
TIME/DIV: 10nS



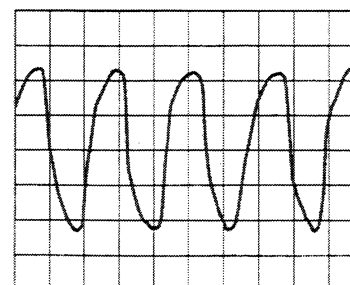
- ② U8 Pin 38 (OSC2) VOLT/DIV: 1V
TIME/DIV: 100nS

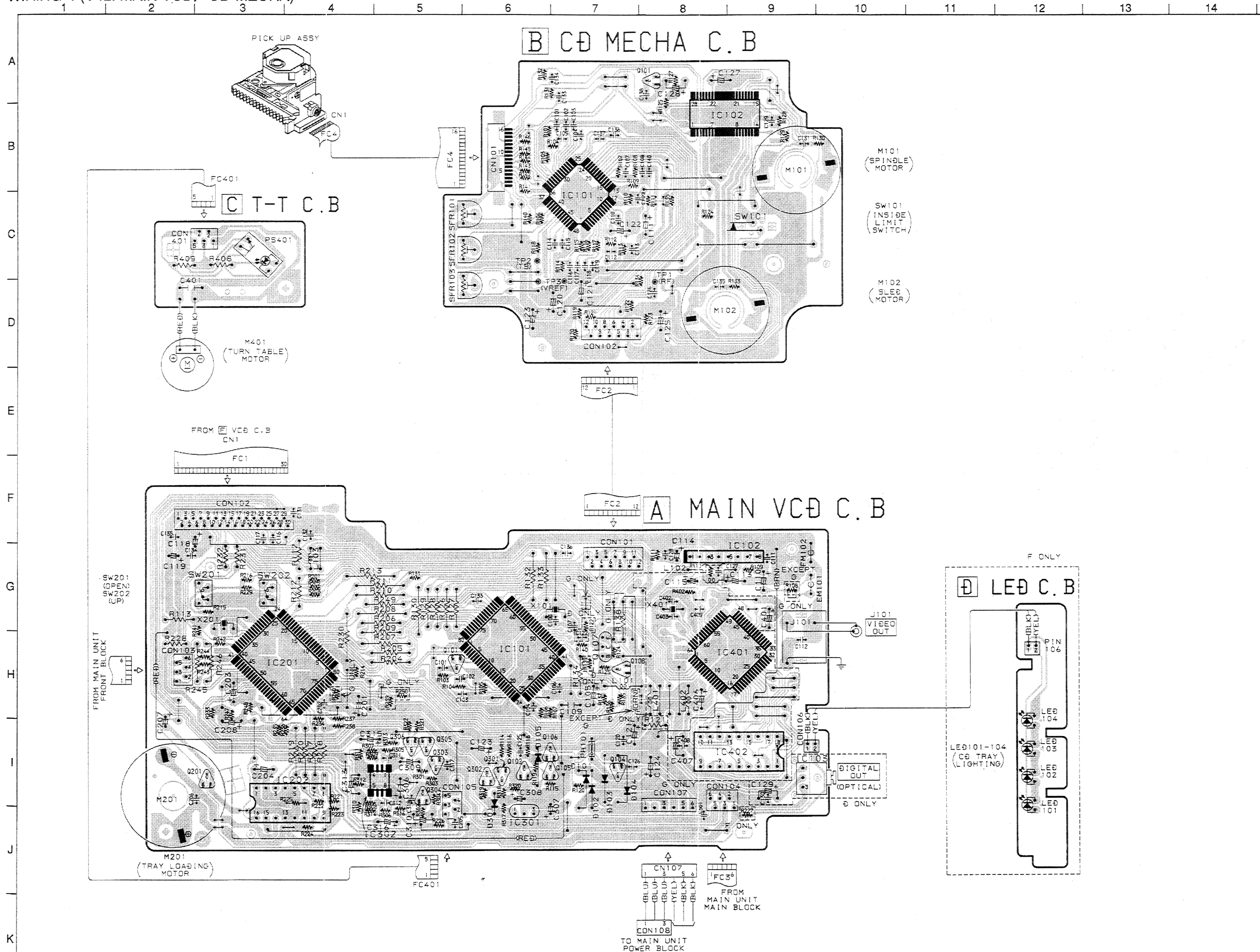


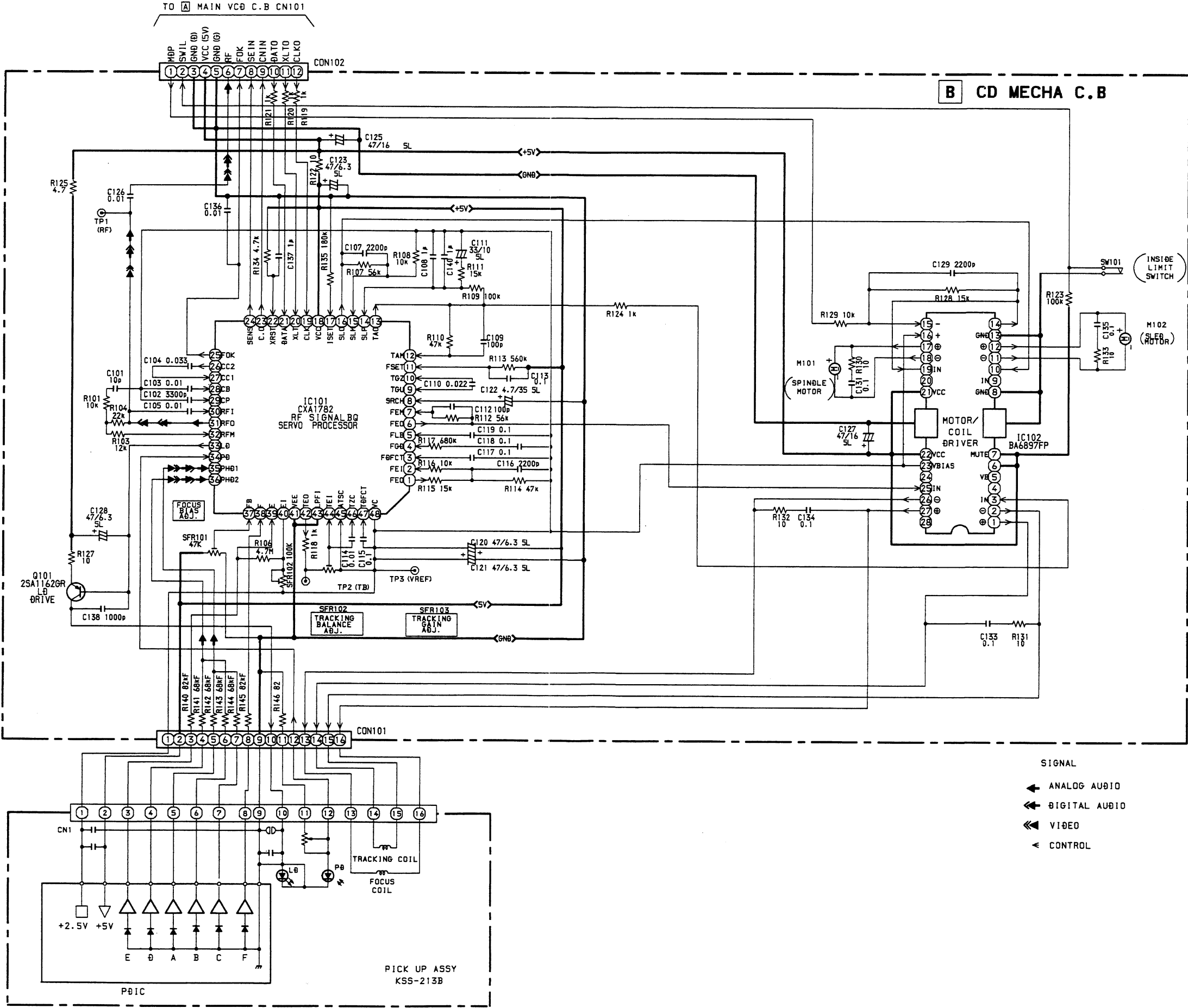
- ③ U14 Pin 1 VOLT/DIV: 1V
TIME/DIV: 100nS



- ④ U14 Pin 12 VOLT/DIV: 1V
TIME/DIV: 100nS

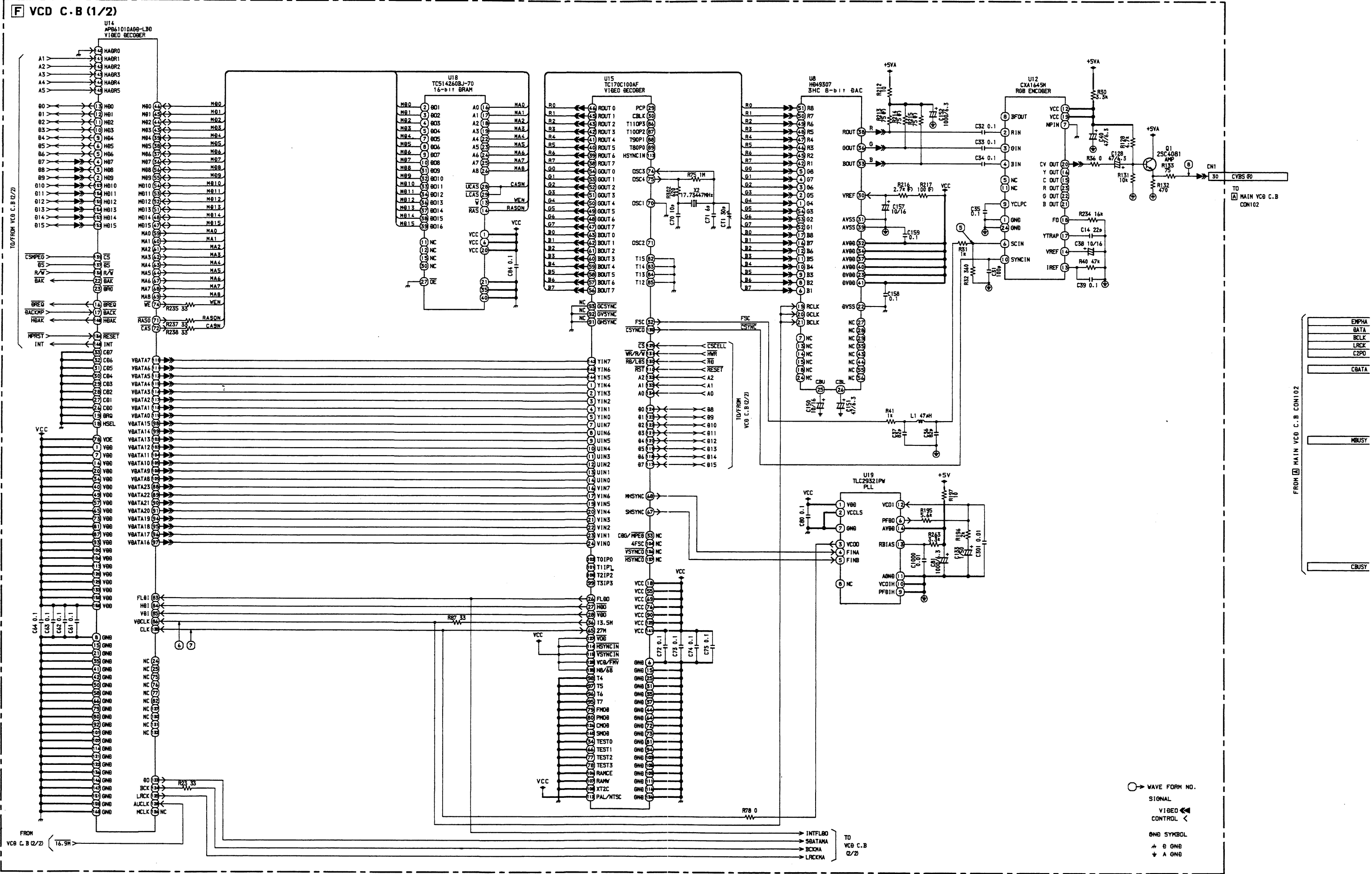




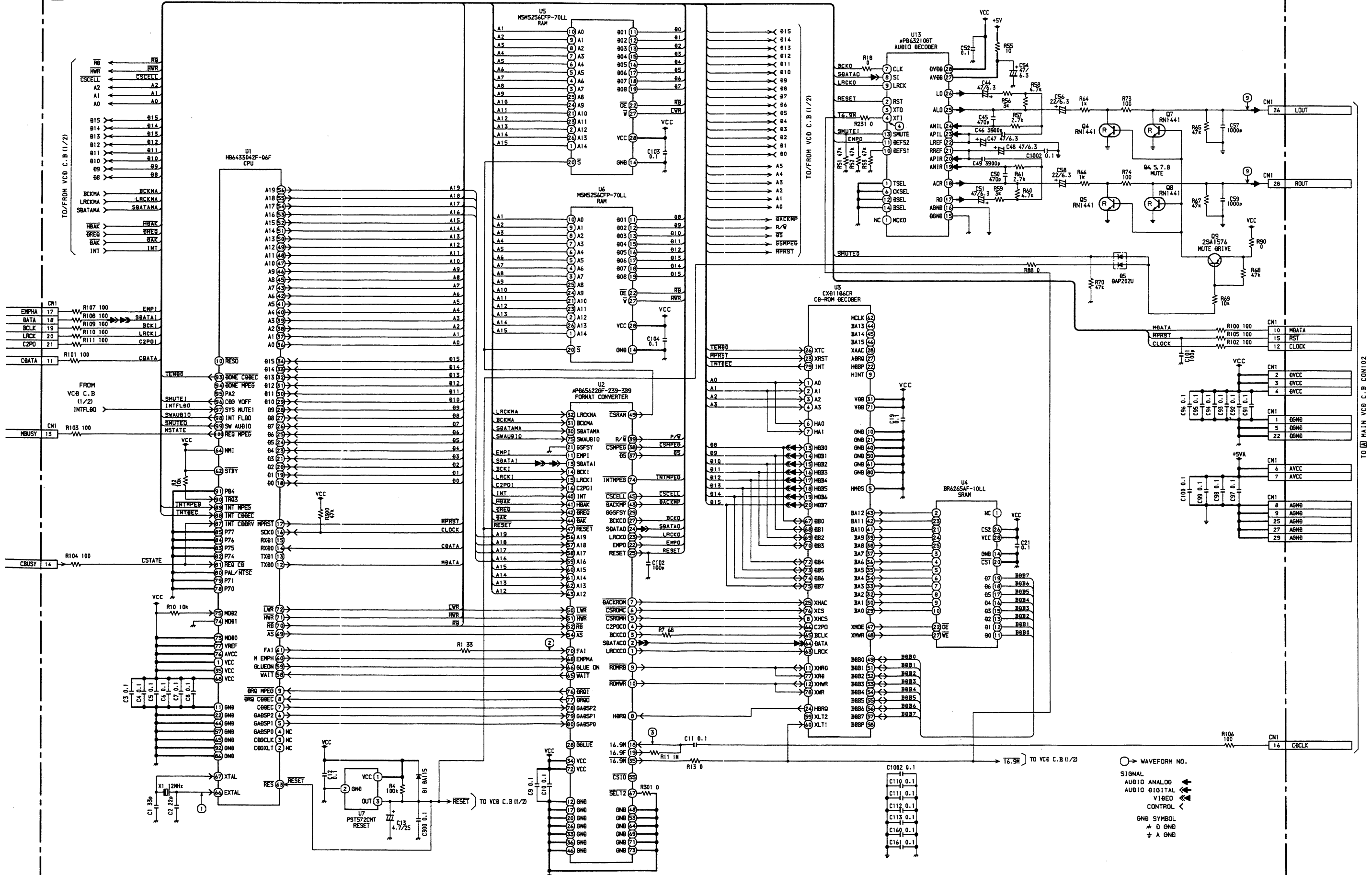


TO **B** CØ MECHA C.B CON102





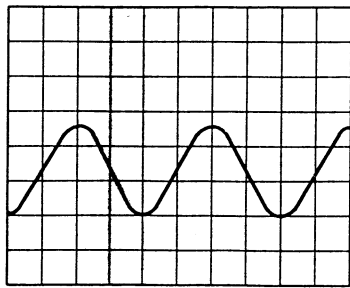
F VCD C.B (2/2)



WAVE FORM

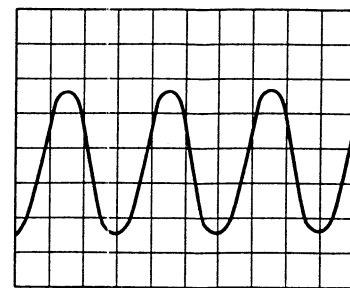
① U1 Pin ⑨ (EXTAL)

VOLT/DIV: 1V
TIME/DIV: 20nS



③ U2 Pin ⑬ (16.9M)

VOLT/DIV: 1V
TIME/DIV: 20nS



⑤ U12 Pin ⑥ (SC IN)

GND



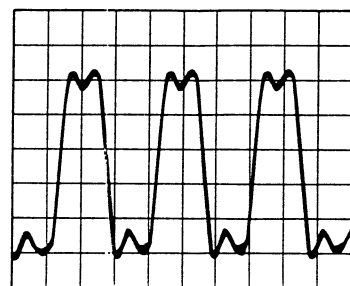
② U2 Pin ⑩ (FAI)

VOLT/DIV: 1V
TIME/DIV: 20nS



④ U13 Pin ④ (XTI)

VOLT/DIV: 1V
TIME/DIV: 20nS



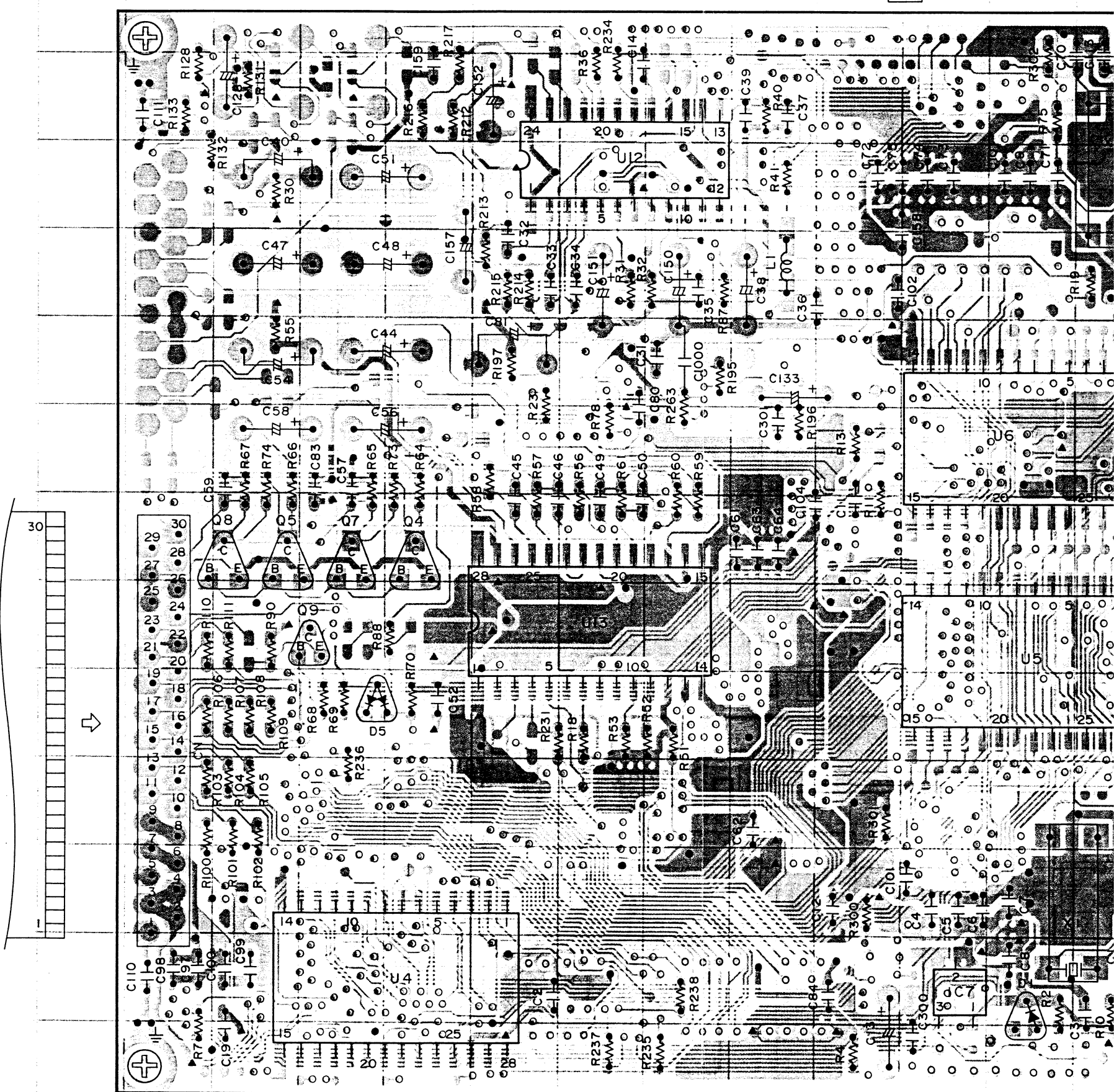
⑥ U14 Pin ⑨ (VD C)



WIRING-5 (V4L: VCD)

F VCD C.B

FROM [A] MAIN VCD C.B
CON102



Through-Hole Note

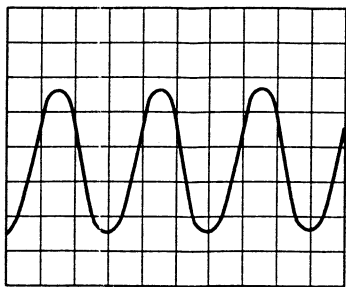
SIGNAL	VCC	+5V	A GND	D GND
○	▲	▲	●	●

VOLT/DIV: 1V
TIME/DIV: 20nS

③

U2 Pin ⑩ (16.9M)

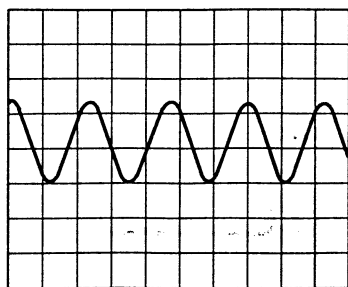
VOLT/DIV: 1V
TIME/DIV: 20nS



⑤

U12 Pin ⑥ (SC IN)

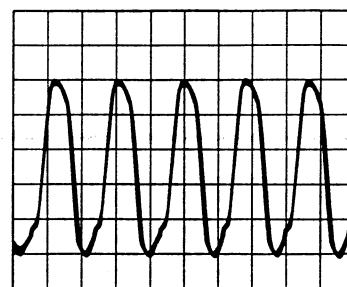
VOLT/DIV: 1.0V
TIME/DIV: 0.1μS



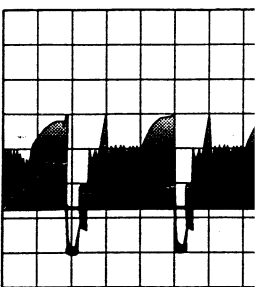
⑦

U14 Pin ⑬ (CLK)

VOLT/DIV: 1V
TIME/DIV: 20nS



KARAOKE

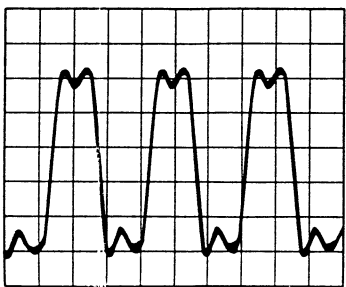


VOLT/DIV: 1V
TIME/DIV: 20nS

④

U13 Pin ④ (XTI)

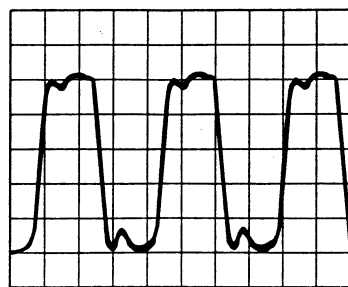
VOLT/DIV: 1V
TIME/DIV: 20nS



⑥

U14 Pin ⑨ (VD CLK)

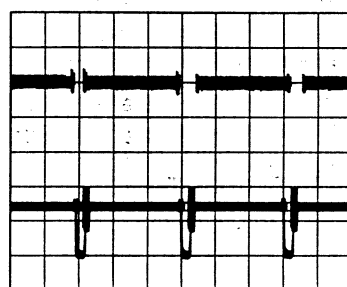
VOLT/DIV: 1V
TIME/DIV: 20nS



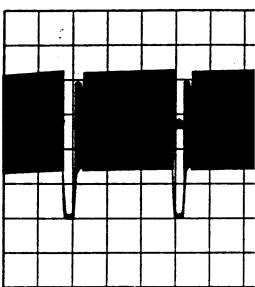
⑧

CN1 Pin ③ (CVBS R)
WHITE

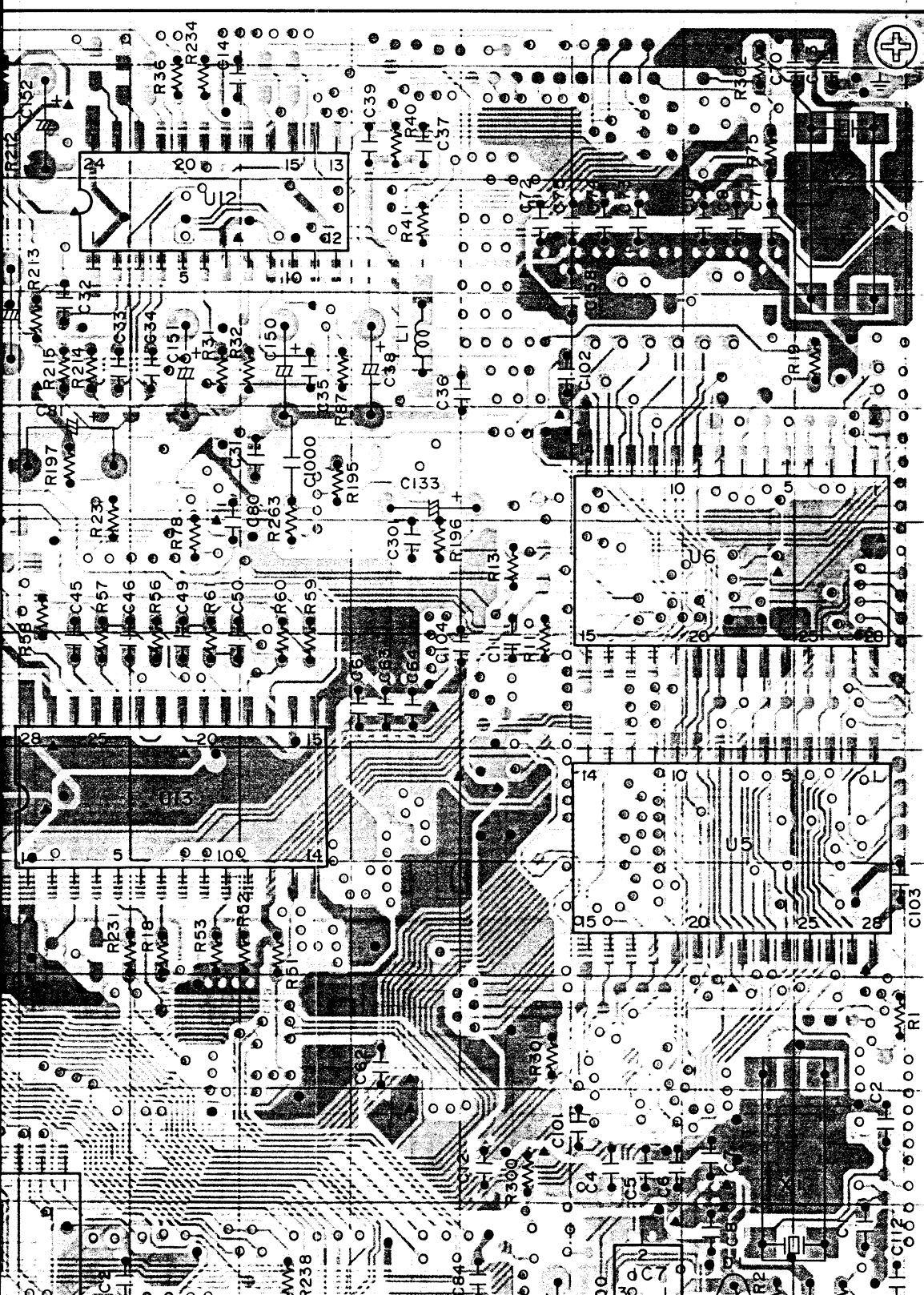
VOLT/DIV: 200mV
TIME/DIV: 20μS



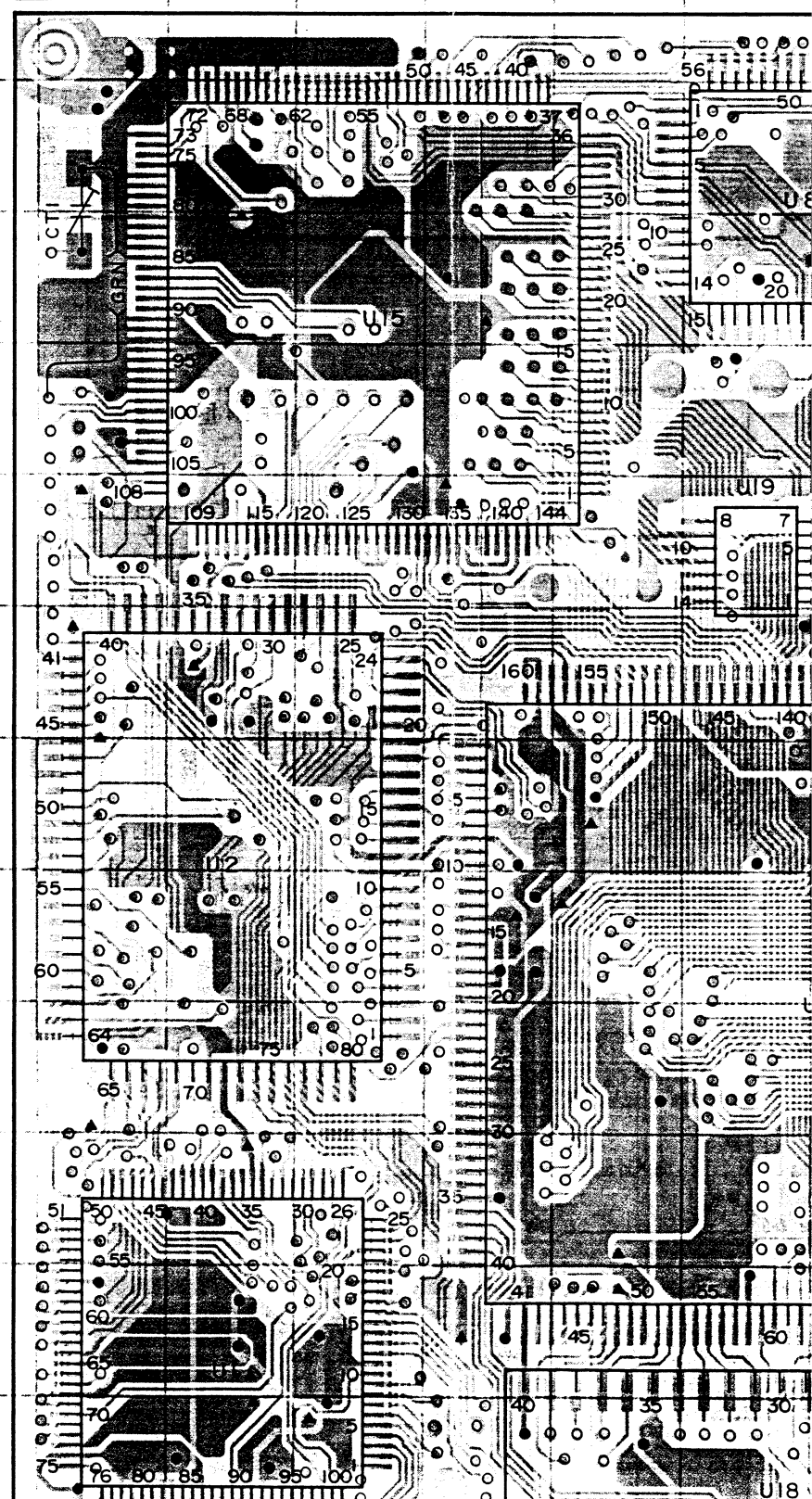
BLUE



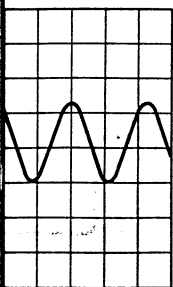
F VCD C.B



F VCD C.B



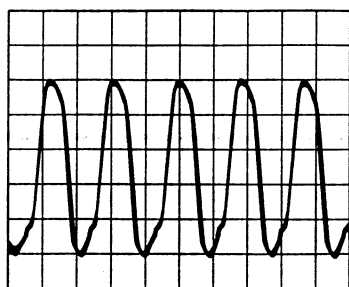
VOLT/DIV: 1.0V
TIME/DIV: 0.1μS



7

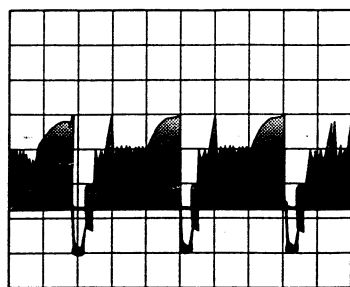
U14 Pin 135 (CLK)

VOLT/DIV: 1V
TIME/DIV: 20nS



KARAOKE

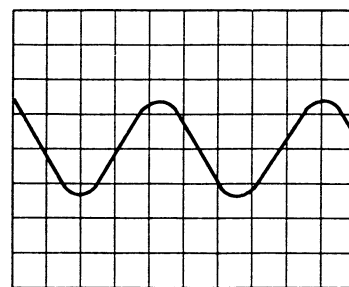
VOLT/DIV: 200mV
TIME/DIV: 20μS



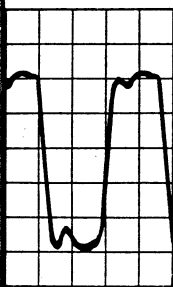
9

CN1 Pin 29 (L OUT)
CN1 Pin 29 (R OUT)
1kHz OUTPUT

VOLT/DIV: 1.0V
TIME/DIV: 0.2mS



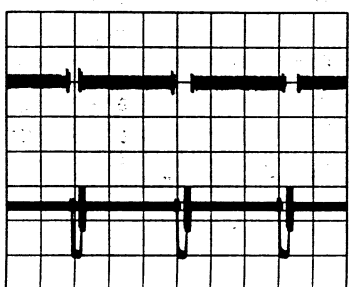
CLK VOLT/DIV: 1V
TIME/DIV: 20nS



8

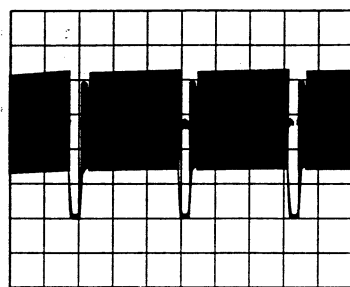
CN1 Pin 30 (CVBS R)
WHITE

VOLT/DIV: 200mV
TIME/DIV: 20μS

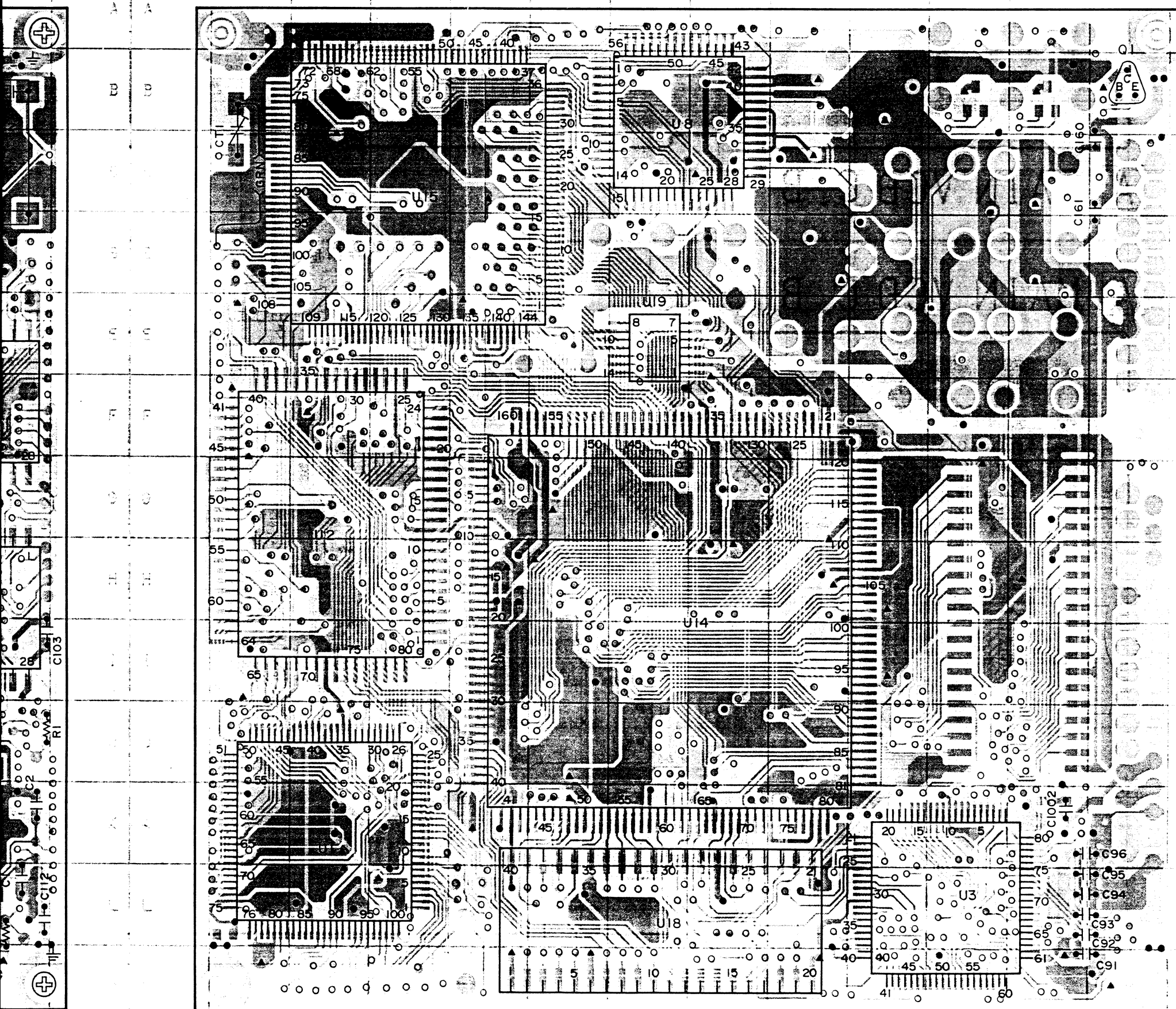


BLUE

VOLT/DIV: 100mV
TIME/DIV: 20μS



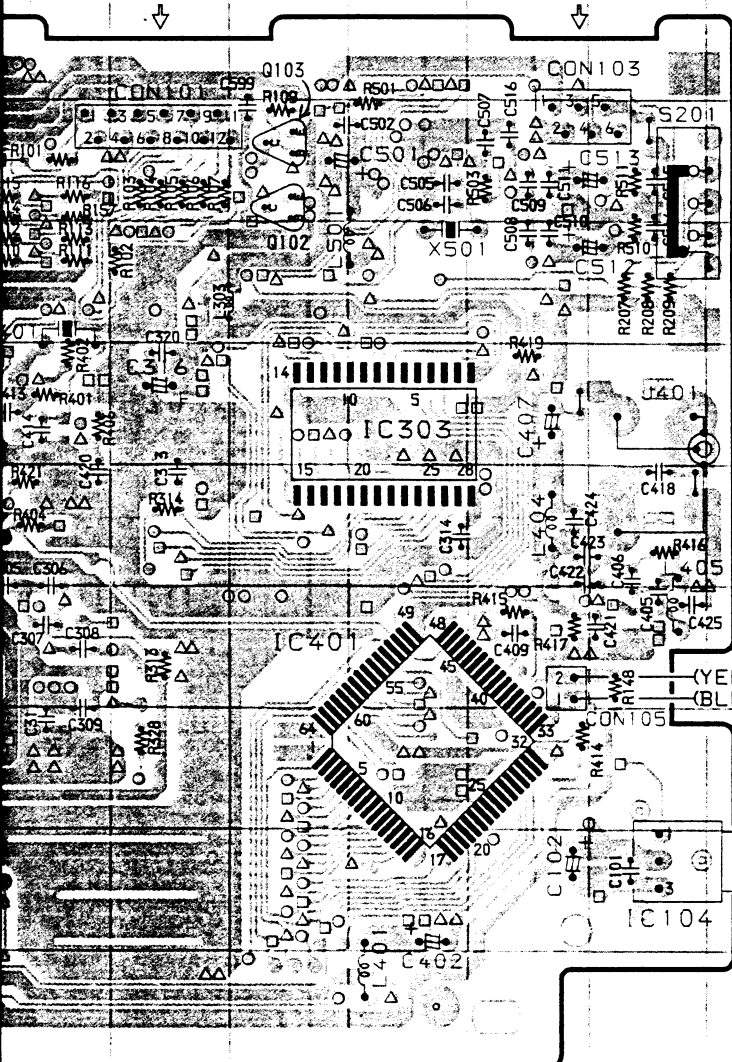
F VCD C.B



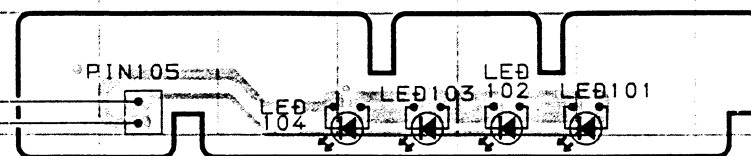


A MAIN VCD C. B

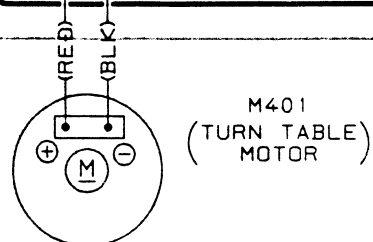
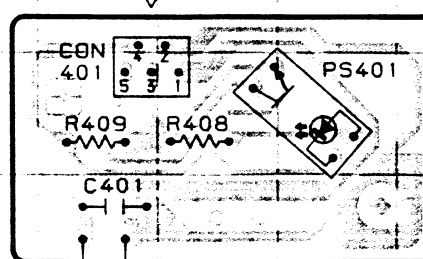


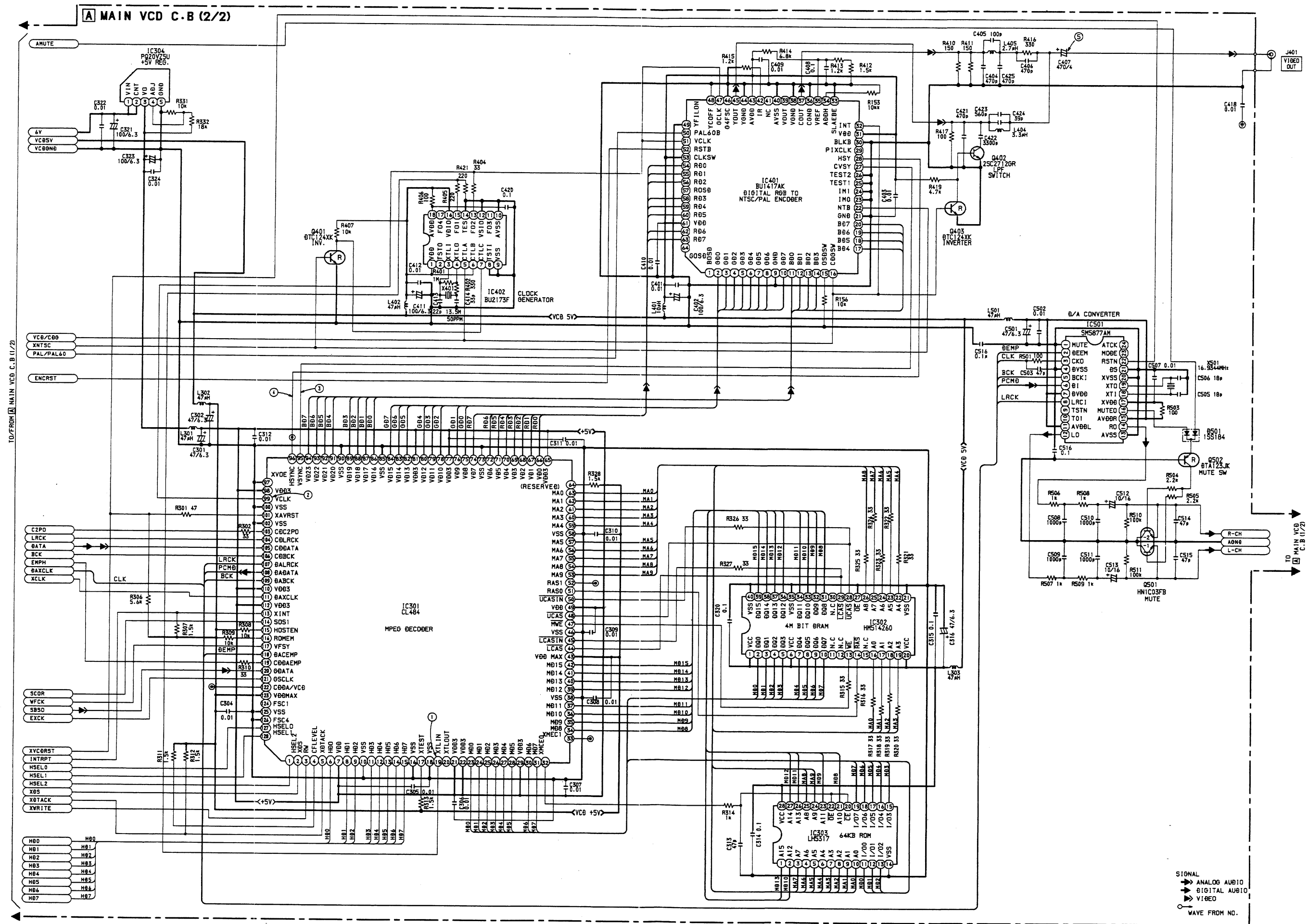


D LED C. B



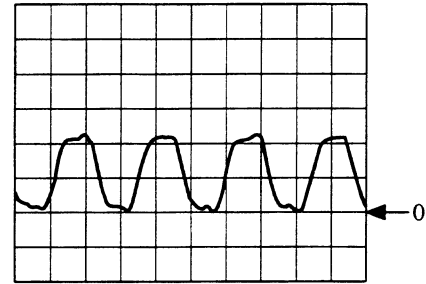
C T-T C.B



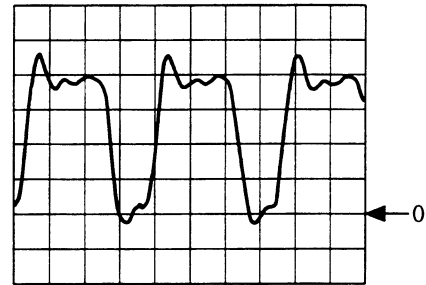


WAVE FORM

- ① IC301 Pin ⑩ (GCK)
40.5MHz
VCD PLAY
TV MODE: • NTSC
• PAL
• PAL AUTO



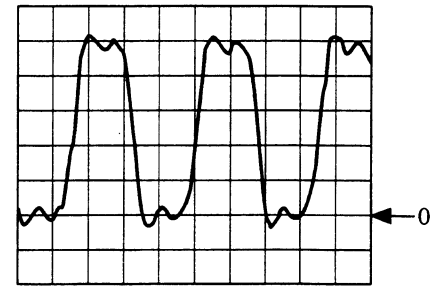
- ② IC301 Pin ⑨ (VCLK)
27MHz±1350Hz
VCD PLAY
TV MODE: • NTSC
• PAL
• PAL AUTO



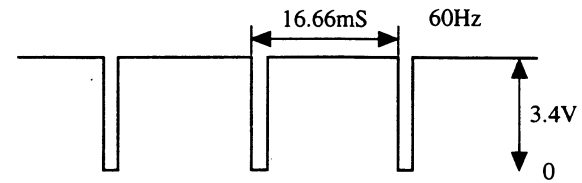
- 28.375MHz
CDG PLAY
TV MODE: • PAL
• PAL AUTO



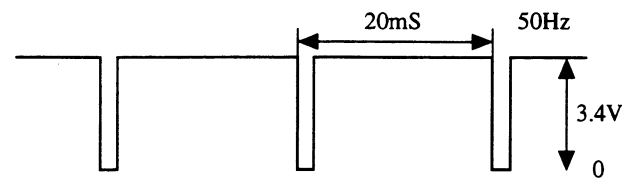
- 28.6363MHz
CDG PLAY
TV MODE: • NTSC



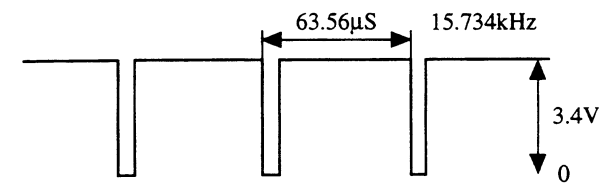
- ③ IC301 Pin ⑤ (V SYNC)
VCD, CDG PLAY
TV MODE: • NTSC
• PAL AUTO



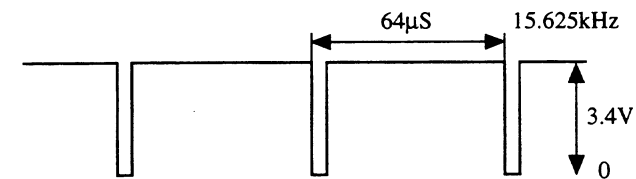
- VCD, CDG PLAY
TV MODE: PAL



- ④ IC301 Pin ⑥ (H SYNC)
VCD, CDG PLAY
TV MODE: • NTSC
• PAL AUTO

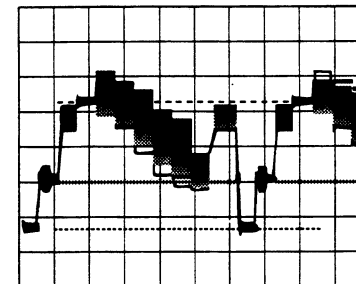


- VCD, CDG PLAY
TV MODE: PAL



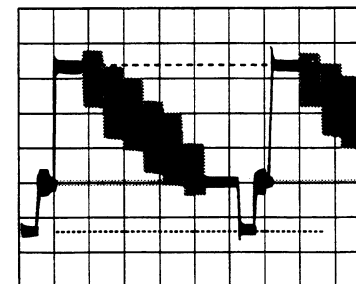
- ⑤ VIDEO OUT
C407 ⊖ side
CDG PLAY: CD-T03 TRACK2
TV MODE: • NTSC

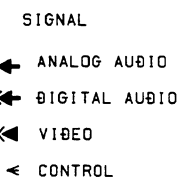
VOLT/DIV: 200mV
TIME/DIV: 10μs



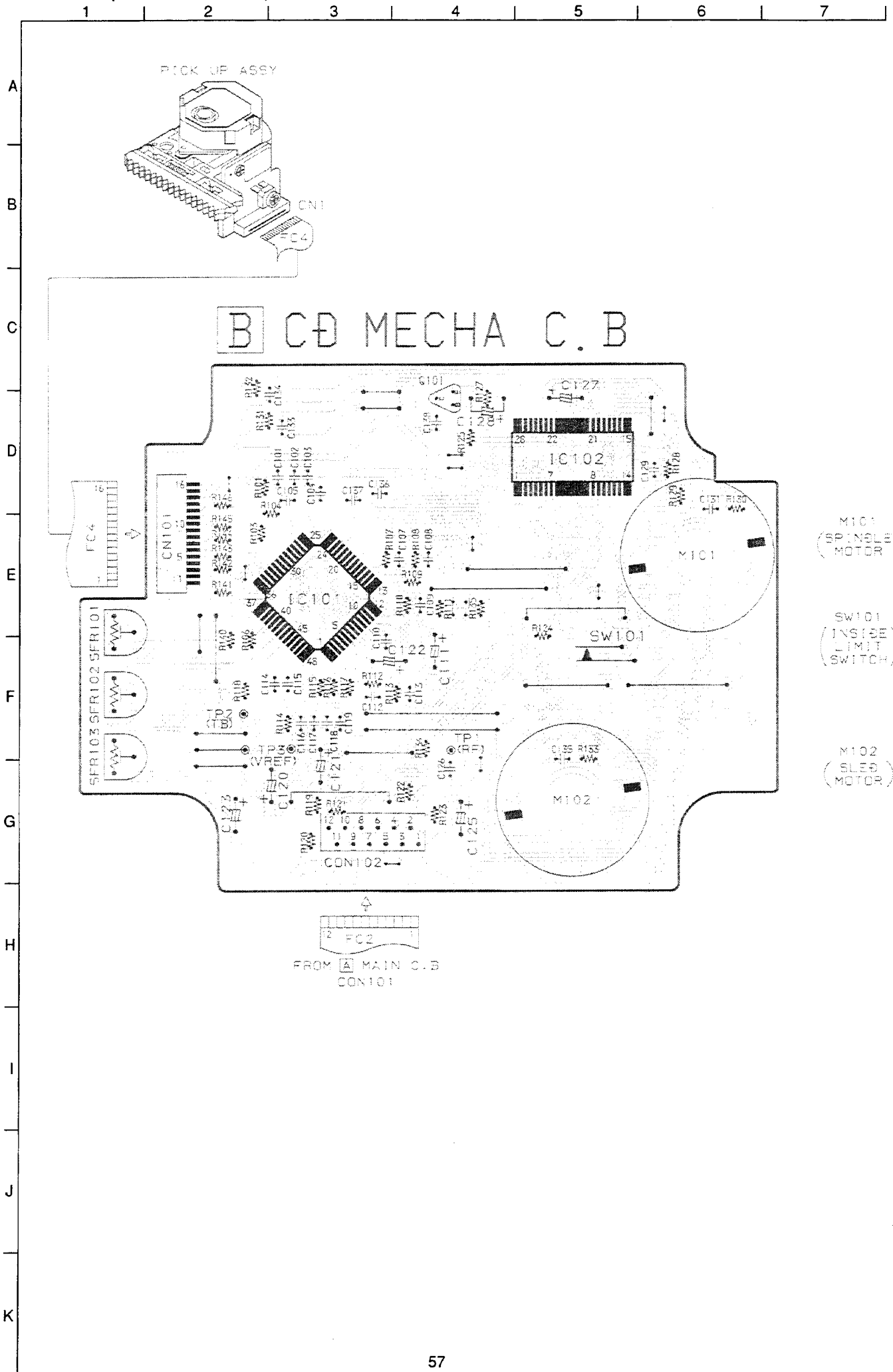
- VCD PLAY: CD-T05 TRACK4
TV MODE: • NTSC

VOLT/DIV: 200mV
TIME/DIV: 10μs





WIRING-7 (V5: CD MECHA)



IC DESCRIPTION

IC, CXD2500BQ

Pin No.	Pin Name	I/O	Description
1	FOK	I	Focus OK input terminal. Used for SENS output and servo auto sequencer.
2	FSW	O	Spindle motor output filter selection output.
3	MON	O	Spindle motor ON-OFF control output.
4	MDP	O	Spindle motor servo control.
5	MDS	O	Spindle motor servo control.
6	LOCK	O	H output when GFS is sampled at 460 Hz and GFS is H. L output when L is continuously 8 times.
7	NC	—	Not used.
8	VCOO	O	Oscillator circuit output for analog EFM PLL.
9	VCOI	I	Oscillator circuit input for analog EFM PLL. fLOCK = 8.6436 MHz.
10	TEST	I	TEST terminal. Normally GND.
11	PDO	O	Charge pump output for analog EFM PLL.
12	VSS	—	GND.
13	NC	—	Not used.
14	NC	—	Not used.
15	NC	—	Not used.
16	VPCO	O	Charge pump output for vari-pitch PLL.
17	VCKI	I	Clock input from external VCO for vari-pitch. fc center = 16.9344 MHz.
18	FILO	O	Filter output for master PLL (slave = digital PLL).
19	FILI	I	Filter input for master PLL.
20	PCO	O	Charge pump output for
21	AVSS	—	Analog GND.
22	CLTV	I	VCO control voltage input for master.
23	AVDD	—	Analog power supply. (+3.5 V)
24	RF	I	EFM signal input.
25	BIAS	I	Asymmetry circuit constant current input.
26	ASYI	I	Asymmetry compare voltage input.
27	ASYO	O	EFM full swing output (L = Vss, H = VDD.)
28	ASYE	I	L: asymmetry circuit OFF, H: asymmetry circuit ON.
29	NC	—	Not used.
30	PSSL	I	Audio data output mode selection input. Serial output at L, parallel output at H.
31	WDCK	O	D/A interface for 48-bit slot. Word clock f = 2 Fs.
32	LRCK	O	D/A interface for 48-bit slot. LR clock f = Fs.
33	VDD		Power supply. (+3.5 V)
34	S DATA	O	DA16 (MSB) output when PSSL = H. 48-bit slot serial data when PSSL = L. (2's COMP, MSB first).
35	BCLK	O	DA15 output when PSSL = H. 48-bit slot bit clock when PSSL = L.
36	NC	O	DA14 output when PSSL = H. 64-bit slot serial data when PSSL = L. (2's COMP, MSB first).
37	NC	O	DA13 output when PSSL = H. 64-bit slot bit clock when PSSL = L.
38	NC	O	DA12 output when PSSL = H. 64-bit slot LR clock when PSSL = L.

Pin No.	Pin Name	I/O	Description
39	GTOP	O	DA11 output when PSSL = H. GTOP output when PSSL = L.
40	XUGF	O	DA10 output when PSSL = H. XUGF output when PSSL = L.
41	XPLCK	O	DA09 output when PSSL = H. XPLCK output when PSSL = L.
42	GFS	O	DA08 output when PSSL = H. GFS output when PSSL = L.
43	RFCK	O	DA07 output when PSSL = H. RFCK output when PSSL = L.
44	C2PO	O	DA06 output when PSSL = H. C2PO output when PSSL = L.
45	XRAOF	O	DA05 output when PSSL = H. XRAOF output when PSSL = L.
46	MNT3	O	DA04 output when PSSL = H. MNT3 output when PSSL = L.
47	MNT2	O	DA03 output when PSSL = H. MNT2 output when PSSL = L.
48	MNT1	O	DA02 output when PSSL = H. MNT1 output when PSSL = L.
49	MNT0	O	DA01 output when PSSL = H. MNT0 output when PSSL = L.
50	APTR	O	Aperture correction control output. H when R channel.
51	APTL	O	Aperture correction control output. H when L channel.
52	VSS	—	GND.
53	XTAI	I	Input to 16.9344 MHz X'tal oscillator circuit. or 33.8688 MHz input.
54	XTAO	O	16.9344 MHz X'tal oscillator output.
55	XTSL	I	X'tal selection input. L when X'tal is 16.9344 MHz. H when 33.8688 MHz.
56	FSTT	O	2/3 divider output of the pins 53 and 54. Does not change with vari-pitch.
57	C4M	O	4.2336 MHz output. When vari-pitch is performed, it changes too.
58	C16M	O	16.2336 MHz output. When vari-pitch is performed, it changes too.
59	MD2	I	Digital-out ON/OFF control. ON at H, OFF at L.
60	DOUT	O	Digital-out terminal.
61	EMPH	O	H output when the playback disc has emphasis. L output without emphasis.
62	WFCK	O	WFCK (Write Frame Clock) output.
63	SCOR	O	H output when S0 or S1 of the subcode sync is detected.
64	SBSO	O	Serial output of Sub P to W.
65	EXCK	I	Clock input for SBSO read out.
66	SQSO	O	SubQ 8-bit and PCM peak level data. 16-bit output.
67	SQCK	I	Clock input for SQSO readout.
68	MUTE	I	Mute at H. Release at L.
69	SENS	O	SENS output. Output to CPU.
70	XRST	I	System reset. Reset at L.
71	DATA	I	Serial data input from CPU.
72	XLAT	I	Latch input from CPU. Latches serial data at fall-down edge.
73	VDD	—	Power supply (+3.5 V).
74	CLOK	I	Serial data transfer clock input from CPU.
75	SEIN	I	Sensor input from SSP.
76	CNIN	I	Track jump number counted signal input.
77	DATO	O	Serial data output to SSP.
78	XLTO	O	Serial data latch output to SSP. Latches at fall-down edge.
79	CLKO	O	Serial data transfer clock output to SSP.
80	MIRR	I	Mirror signal input. Used for jump of 128 track or more at auto sequencer.

IC, μ PD78044BGF

Pin No.	Pin Name	I/O	Description
1	DO ON	O	Digital output. ON/OFF output.
2~7	NC	—	Not used.
8	VDD	—	PWR. +5 V power supply.
9	CM CLK	I/O	Serial clock I/O.
10	C DATA	O	Serial data output.
11	M DATA	I	Serial data input.
12	O-CLK	O	DSP serial clock output.
13	O-XLT	O	DSP serial latch output.
14	O-SQCLK	O	DSP sub Q read-out clock output.
15	O-DATA	O	DSP serial data output.
16	I-SQDATA	I	DSP sub Q data input.
17	RESET	I	System reset input.
18	I-SENS	I	DSP SENS input.
19	XRST	O	CD system reset output.
20	AVSS	—	PWR. GND potential of A/D converter input.
21	I-FOK	I	ASP FOK input.
22	I-GFS	I	DSP GFS input.
23	—	—	Connected GND.
24	I-ILSW	I	Pickup limit switch input.
25	I-OCSSW	I	Tray OPEN/CLOSE switch input.
26~28	—	—	Connected GND.
29	AVDD	—	PWR. Analog power supply of A/D converter input.
30	AVREF	I	PWR. Reference voltage input of A/D converter input.
31	—	—	Connected GND.
32	NC	—	Open terminal.
33	VSS	—	PWR. GND potential.
34	X1	I	CLK. Terminal for 4.19 MHz clock oscillator.
35	X2	O	CLK. Terminal for 4.19 MHz clock oscillator.
36~38	NC	—	Not used.
39	$\overline{\text{C-BUSY}}$	O	MPEG status output.
40	MSTBY	I	Main microprocessor status input.
41	CLOCK	O	Main microprocessor serial clock output.
42	DATA	O	Main microprocessor serial data output.
43	D-REQ	O	Main microprocessor status output.
44	I-KEY	I	Main microprocessor serial data input.
45	SCOR	I	DSP SCOR input.
46	$\overline{\text{M-BUSY}}$	I	MPEG status signal input.
47	—	—	Connected GND.
48	IC	—	PWR. Connected to Vss.
49	MUTE L	O	L channel analog mute output.
50	MUTE R	O	R channel analog mute output.

Pin No.	Pin Name	I/O	Description
51	DSENS	I	Turntable sensor input.
52	VDD	—	PWR. +5 V power supply.
53 ~ 64	NC	—	Not used.
65	O-TOPN	O	Tray OPEN output.
66	O-CLS	O	Tray CLOSE output.
67	O-DFWD	O	Turntable forward rotation output.
68	O-DRVS	O	Turntable reverse rotation output.
69, 70	NC	—	Not used.
71	VLOAD	—	PWR. -27 V power supply for FL pull-down.
72 ~ 76	NC	—	Not used.
77	VCD	O	VIDEO CD selection output.
78	CD FUNC	O	CD function selection output.
79	G-MUT	O	CDG mute output.
80	CD ON	O	FL. Digit output for FL display.

IC, LC7872E

Pin No.	Pin name	I/O	Description
1, 2	S1, S2	—	DSP select pin for CD. (Connected to VDD)
3	SBCK	O	Subcode read/write clock.
4	SFSY	I	Subcode frame sync signal.
5	PW	I	Subcode read/write data.
6	SBSY	I	Subcode block sync signal.
7	VDD1	—	Power supply for digital block. (Connected to +5V)
8	CE	I	Control pin when serial input or serial output. (Connected to GND)
9	DO	O	Serial data output. (Connected to GND)
10	DI	I	Serial data input. (Connected to GND)
11	CL	I	Clock when inputting/outputting serial data. (Connected to GND)
12	MUTE	I	Control signal disabling the subcode.
13	VSS1	—	GND for digital block.
14	$\overline{WE}$	O	DRAM control pin.
15	$\overline{RAS}$	O	DRAM control pin.
16~23	A0~A7	O	DRAM address pin.
24	DB0	I/O	DRAM data pin.
25	$\overline{CAS}$	O	DRAM control pin.
26	DB1	I/O	DRAM data pin.
27	$\overline{DE}$	O	DRAM control pin.
28	DB2	I/O	DRAM data pin.
29	DB3	I/O	DRAM data pin.
30	CE	I	“L”: Normal mode “H”: Color bar output (Not used)
31	CDGM	O	“H” output when CDG disk. (Not used)
32	TRANS0	O	Transparency digital output. (Not used)
33	TRANS1	O	Transparency digital output. (Not used)
34	TRANS2	O	Transparency digital output. (Not used)
35	TRANS3	O	Transparency digital output. (Not used)
36	TRANS4	O	Transparency digital output. (Not used)
37	TRANS5	O	Transparency digital output. (Not used)
38	VSS2	—	Composite video DAC GND pin.
39	VDD2	—	Composite video DAC power supply pin. (Connected to +5V)
40	BIAS	O	Capacitor connecting pin for eliminating ripple.
41	VIDEO	O	Composite video output pin (8-bit DAC output).
42	TEST	I	Test pin. Set to “L” normally. (Connected to GND)
43	LINE	I	When NP2 pin is “H”: H: 263H L: 262H When NP2 pin is “L”: H: 312H L: 314H (Not used)
44	FSCIN	I	Subcarrier clock input pin. (feedback resistor is built in) (Connected to GND)
45	VSNC	O	Vertical sync signal output pin. (Not used)
46	TEST1	I	Test pin. Set to “L” normally. (Connected to GND)
47	YS	O	Superimpose control output. (Not used)
48	$\overline{CSTNC}$	O	Composite sync signal output. (Not used)

Pin No.	Pin name	I/O	Description
49	GND	—	GND.
50	EFLG	O	Error status monitor pin. (Not used)
51	FSX	O	For error status monitor trigger. (Not used)
52	DEN	I	Disk information display enable. H: BGC L: Enable (Connected to GND)
53	PALID	I	External control pin when superimposing with PAL (pull-up resistor is built in). (Not used)
54	VDD3	—	Digital power supply (+5V)
55	FSC	O	Subcarrier clock output. NTSC mode: 3.579545 MHz PAL mode: 4.433619 MHz (Not used)
56	VDD4	—	Digital power supply (+5V)
57	$\overline{\text{RESET}}$	I	Reset input pin.
58	N/P1	I	NTSC/PAL selection pin. (RGB encoder) "H": NTSC "L": PAL
59	N/P2	I	NTSC/PAL selection pin. (CD-G decoder) "H": NTSC "L": PAL
60	SON	I	Superimpose ON/OFF pin. (Connected to GND)
61	XIN2	I	Crystal oscillator 17.734476 MHz. (for PAL)
62	XOUT2	O	Crystal oscillator 17.734476 MHz. (for PAL)
63	XIN1	I	Crystal oscillator connection 14.31818 MHz. (for NTSC)
64	XOUT1	O	Crystal oscillator connection 14.31818 MHz. (for NTSC)

IC, CXA1782BQ

Pin No.	Pin name	I/O	Description
1	FEO	O	Focus error amplifier output pin. This pin is connected to the FZC comparator input internally.
2	FEI	I	Focus error input pin.
3	FDFCT	I	Capacitor connection pin for time constant used when there is defect.
4	FGD	I	This pin is connected to GND via capacitor when high frequency gain of the focus servo is attenuated.
5	FLB	I	This is a pin where the time constant is externally connected to raise the low frequency gain of the focus servo.
6	FEO	O	Focus drive output.
7	FEM	I	Focus amplifier inverted input pin.
8	SRCH	I	This is a pin where the time constant is externally connected to generate the focus search waveform.
9	TGU	I	This is a pin where the selection time constant is externally connected to set the tracking servo the high frequency gain.
10	TG2	I	This is a pin where the selection time constant is externally connected to set the tracking high frequency gain.
11	FSET	I	Pin for setting peak of the phase compensator of the focus tracking.
12	TAM	I	Tracking amplifier inverted input pin.
13	TAO	O	Tracking drive output.
14	SLP	I	Sled amplifier non-inverted input pin.
15	SLM	I	Sled amplifier inverted input pin.
16	SLO	O	Sled drive output.
17	ISSET	I	The current which determines height of the focus search, track jump and sled kick is input.
18	VCC	—	+ 5 V power supply pin.
19	CLK	I	Serial data transfer clock input from CPU.
20	XLT	I	Latch input from CPU.
21	DATA	I	Serial data input from CPU .
22	XRST	I	Reset input pin. Reset at L.
23	COUT	O	Signal output to count the number of tracks.
24	SENS	O	FZC, DFCT, TZC, Gain or BAL is output depending on the command from CPU .
25	FOK	O	Output pin of the focus OK comparator.
26	CC2	O	Input pin where the DEFECT bottom hold output is capacitance coupled.
27	CC1	I	DEFECT bottom hold output pin.
28	CB	I	This is a pin where the DEFECT bottom hold capacitor is connected.
29	CP	I	This is a pin where the MIRR hold capacitor is connected and MIRR comparator non-inverted signal is input.
30	RFI	I	Input pin where the RF summing amplifier output is capacitance coupled.
31	RFO	O	RF summing amplifier output pin. (Eye pattern check point)
32	RFM	I	RF summing amplifier inverted input pin. Gain of RF amplifier is determined by the resistor connected between RFO and this pin.

Pin No.	Pin name	I/O	Description
33	LD	O	APC amplifier output pin.
34	PHD	I	APC amplifier input pin.
35~36	PHD1~2	I	RF I-V amplifier inverted input pin. These pins are connected to the A+C and B+D pins of the optical pickup.
37	FE BIAS	I	Bias adjustment pin of the focus error amplifier.
38~39	F~E	I	F and E IV amplifier non-inverted input pins. These pins are connected to the F and E of the optical pickup.
40	EI	—	Gain adjustment pin of the I-V amplifier E.
41	VEE	—	GND connection pin
42	TEO	O	Tracking error amplifier output pin. E-F signal is output.
43	LPFI	I	BAL adjustment comparator input pin.
44	TEI	I	Tracking error input pin.
45	ATSC	I	Window comparator input pin for detecting ATSC.
46	TZC	I	Tracking zero-cross comparator input pin.
47	TDFCT	I	Capacitor connection pin for the time constant used when there is defect.
48	VC	O	DC voltage output pin of VREF. (VDD/2)

IC, CL480

Pin No.	Pin Name	I/O	Description
1	HSEL2	I	Host address bus.
2	-DS	I	Data strobe.
3	R/-W	I	Read/write.
4	CFLEVEL	O	Coded data FIFO level status. Open drain.
5	-DACK	O	Host data acknowledge. Open drain.
6	HD0	I/O	Host data bus.
7	VDD3	—	Power supply pin. Used in 3.3 V.
8, 9	HD1, HD2	I/O	Host data bus.
10	VSS	—	GND.
11~15	HD3~HD7	I/O	Host data bus.
16	VSS	—	GND.
17	-TEST	I	Test terminal. Normally fixed to High.
18	VSS	—	GND.
19	XTL IN	I	Global clock. 40.5 MHz.
20	XTL OUT	O	Global clock. 40.5 MHz.
21, 22	VDD3	—	Power supply pin. Used in 3.3 V.
23~28	MD0~MD5	I/O	Memory data bus.
29	VDD3	—	Power supply pin. Used in 3.3 V.
30, 31	MD6, MD7	I/O	Memory data bus.
32, 33	-MCE0, -MCE1	O	Chip enable.
34~37	MD8~MD11	I/O	Memory data bus.
38	VSS	—	GND.
39~42	MD12~MD15	I/O	Memory data bus.
43	VDDMAX	—	Power supply pin. Used in 5.0 V.
44	-LCAS	O	Lower digit, column address strobe.
45	-LCASIN	I	Lower digit, data latch enable.
46	VSS	—	GND.
47	-MWE	O	Write enable.
48	-UCAS	O	Higher digit, column address strobe.
49	VDD3	—	Power supply pin. Used in 3.3 V.
50	-UCASIN	I	Higher digit, data latch enable.
51, 52	RAS0, RAS1	O	Lower address strobe.
53~57	MA9~MA5	O	Memory address bus.
58	VSS	—	GND.
59~63	MA4~MA0	O	Memory address bus.
64	RESERVED	—	Reserved.
65	VDD3	—	Power supply pin. Used in 3.3 V.
66~72	VD0~VD6	O	Pixel data bus. RGB or YCbCr format.
73	VSS	—	GND.
74~76	VD7~VD9	O	Pixel data bus. RGB or YCbCr format.
77	VDD3	—	Power supply pin. Used in 3.3 V.

Pin No.	Pin Name	I/O	Description
78~80	VD10~VD12	O	Pixel data bus. RGB or YCbCr format.
81	VDD3		Power supply pin. Used in 3.3 V.
82~84	VD13~VD15	O	Pixel data bus. RGB or YCbCr format.
85	VSS	—	GND.
86~89	VD16~VD19	O	Pixel data bus. RGB or YCbCr format.
90	VSS	—	GND.
91~94	VD20~VD23	O	Pixel data bus. RGB or YCbCr format.
95	-VSYNC or CSY	I/O	Vertical sync signal.
96	-HSYNC	I/O	Horizontal sync signal.
97	-VOE	I	Video output enable.
98	VDD3	—	Power supply pin. Used in 3.3 V.
99	VCLK	I/O	Video clock.
100	VSS	—	GND.
101	-RESET	I	Hardware reset.
102	VSS	—	GND.
103	CD-C2PO	I	Data error. Used during CD-ROM data input.
104	CD-LRCK	I	LR clock.
105	CD-DATA	I	Serial data input from CD-DSP.
106	CD-BCK	I	Bit clock from CD decoder.
107	DA-LRCK	O	LR clock.
108	DA-DATA	O	Bit serial audio sample signal.
109	DA-BCK	O	Audio bit clock.
110	VDD3	—	Power supply pin. Used in 3.3 V.
111	DA-XCLK	I	External audio frequency clock.
112	VDD3	—	Power supply pin. Used in 3.3 V.
113	-INT	O	Interrupt request.
114	RESERVED	—	Reserved.
115	HOST_ENA	I	Host enable.
116	RAM_ENA	I	Boot ROM enable.
117	RESERVED	—	Reserved.
118	DAC_EMP	O	Output emphasis flag.
119	CDDA_EMP	I	Input emphasis flag.
120	RESERVED	—	Reserved.
121	-FMV_DET	O	FMV detection. L: FMV detected.
122	CDDA/VCD	O	Input data identification. H: CDDA. L: video CD.
123	VDDMAX	I	Power supply pin. Used in 5.0 V.
124	RESERVED	—	Reserved.
125	VSS	—	GND.
126	RESERVED	—	Reserved.
127, 128	HSEL0, HSEL1	I	Host address bus.

IC, CXD1178Q

Pin No.	Pin Name	I/O	Description
1~8	R0~R7	I	Digital input.
9~16	G0~G7		
17~24	B0~B7		
25	BLK	I	Blanking pin. No signal at "H" (Output 0V). Output condition at "L".
26	$\overline{\text{CE}}$	I	Chip enable pin. No signal (Output 0V) at "H" and minimizes power consumption.
27	RCK	I	Clock pin. Moreover all input pins are TTL-CMOS compatible.
28	GCK		
29	BCK		
30, 31	DVSS	—	Digital GND.
32	VB	O	Connect a capacitor of about 0.1 μ F.
33	AVSS	—	Analog GND.
34	VREF	I	Set full scale output value.
35	IREF	I	Connect a resistance 16 times "16R" that of output resistance value "R".
36	RO	O	Inverted current output pin. Normally dropped to analog GND.
37	RO	O	Current output pin. Voltage output can be obtained by connecting a resistance.
38	$\overline{\text{GO}}$	O	Inverted current output pin. Normally dropped to analog GND.
39	GO	O	Current output pin. Voltage output can be obtained by connecting a resistance.
40	BO	O	Inverted current output pin. Normally dropped to analog GND.
41	BO	O	Current output pin. Voltage output can be obtained by connecting a resistance.
42	VG	I	Connect a capacitor of about 0.1 μ F.
43~46	AVDD	—	Analog VDD.
47, 48	DVDD	—	Digital VDD.

IC, MC68HC705

Pin No.	Pin Name	I/O	Description
1	RST	I	Reset.
2	IRQ	I	MPEG DECODER request signal.
3	VPP	—	ROM write power.
4~11	PA7~PA0	I/O	MPEG DECODER data bus 7~0.
12~14	PB0~PB2	O	MPEG DECODER register select 0~2.
15	PB3	O	MPEG DECODER data R/W select.
16	PB4	O	MPEG DECODER data strobe.
17	PB5	I	MPEG DECODER data acknowledge.
18	PB6	I	CD-I bit stream detect.
19	PB7	I	CD DA/VCO select.
20	VSS	—	Power ground.
21	PC7	I	MPEG DECODER FIFO status.
22, 23	PC6, PC5	—	Not used.
24	PC4	O	MPEG DECODER reset signal.
25, 26	PC3, PC2	—	Not used.
27, 28	PC1, PC0	O	Key scan out 1, 0.
29	RDI	—	Not used.
30	TD $\bar{O}$		
31~34	PD2~PD5	I	Key scan input 0~3.
35	TCMP	O	Remote data out.
36	PD7	—	Not used.
37	CAP	I	Remote data in.
38, 39	OSC2, OSC1	I	X _{tal} in.
40	VDD	—	Power 5V.

IC, μ PD6376

Pin No.	Pin Name	I/O	Description
1	FS-SEL	I	As this terminal is "Low" or open, L-ch data and R-ch data are inputted for serial data by the pin 15. As this terminal is "High", L-ch data is inputted by the pin 15, R-ch data is inputted by the pin 14. (Pull-downed by the 100 k Ω resistance in IC.)
2	D. GND	—	Ground terminal for the logic circuit.
3	NC	—	—
4	D. VDD	—	Power supply terminal for the logic circuit.
5	A. GND	—	Ground terminal for the analog circuit.
6	R. OUT	O	Output terminal for the right analog signal.
7, 8	A. VDD	—	Power supply terminal for the analog circuit.
9, 10	R. REF, L. REF	—	Operational Amplifier reference bias terminal. Normally connected to A.GND via a capacitor.
11	L. OUT	O	Output terminal for the left analog signal.
12	A. GND	—	Ground terminal for the analog circuit.
13	LRCK	I	As the pin 1 is "Low" or open, this is input terminal for left/right identification signal. As the pin 1 is "High", this is input terminal for word identification signal of input data.
14	LRSEL	I	As the pin 1 is "Low" or open, this is left/right selection terminal for LRCK signal. At "High" of LRCK signal, set LRSEL pin at "Low" for L-ch DATA input. At "Low" of LRCK signal, set LRSEL pin at "High" for L-ch DATA input. As the pin 1 is "High", this is input terminal for R-ch serial data.
15	DATA	I	As the pin 1 is "Low" or open, this is input terminal for L-ch and R-ch serial data. As the pin 1 is "High", this is input terminal for L-ch serial data.
16	BCK	I	Input terminal for read clock of serial input data.

IC, CXA1645M

Pin No.	Pin Name	I/O	Description
1	GND	—	GND.
2	RIN	I	Analog RGB input terminals.
3	GIN		
4	BIN		
5	NC	—	N. C.
6	SCIN	I	Subcarrier input terminal.
7	NPIN	I	NTSC, PAL mode select terminal. NTSC: Vcc, PAL: GND.
8	BFOUT	O	Output terminal to monitor the BF pulse. Unable to drive 75 Ω load.
9	YCLPC	—	External time constant for Y signal clamp is connected to this terminal.
10	SYNCIN	I	Composite sync signal input terminal. Input at TTL level. SYNC period at L (≤ 0.8 V). H (≥ 2.0 V).
11	NC	—	N. C.
12	VCC	—	Power supply terminal.
13	IREF		Terminal which determines internal reference current.
14	VREF	—	Internal reference voltage terminal.
15	COOUT	O	Chroma signal output terminal.
16	YOUT	O	Y signal output terminal.
17	YTRAP	I	Terminal to reduce cross-color due to subcarrier frequency component included in the Y signal.
18	FO	I	fo adjustment terminal of internal filter. The following resistor is connected between GND depending upon NTSC or PAL mode. NTSC: 20 k Ω ($\pm 1\%$) PAL: 16 k Ω ($\pm 1\%$).
19	VCC	—	Power supply terminal.
20	CVOUT	O	Composite video signal output terminal.
21	BOUT	O	Analog RGB signal output terminal
22	GOUT		
23	ROUT		
24	GND	—	GND.

IC, HD6433042F06F

Pin No.	Pin Name	I/O	Description
1	VCC	I	Power supply.
2	CDG DIN	O	CD-G decoder serial data signal.
3	CDG XLT	O	CD-G decoder latch signal.
4	CDG CLK	O	CD-G decoder clock signal.
5~7	GADSP0~2	O	Gate array DSP format 0~2.
8	$\overline{\text{DRQ CDDEC}}$	I	CD-ROM decoder data request signal.
9	$\overline{\text{DRQ MPEG}}$	I	MPEG decoder data request signal.
10	$\overline{\text{RESO}}$	O	External reset output.
11	GND	I	GND.
12	TXD0	O	Serial interface (RXD).
13	TXD1	O	CXD for test.
14	RXD0	I	Serial interface (RXD).
15	RXD1	I	RXD for test.
16	SCK0	I/O	Serial interface (SCK).
17	$\overline{\text{MPRST}}$	O	Peripheral reset. L: RESET ON.
18~21	D0~D3	I/O	Data bus 0~3.
22	GND	I	GND.
23~34	D4~D15	I/O	Data bus 4~15.
35	VCC	I	Power supply.
36~43	A0~A7	O	Address bus 0~7.
44	GND	I	GND.
45~56	A8~A19	O	Address bus 8~19.
57	GND	I	GND.
58	$\overline{\text{WAIT}}$	I	External wait signal.
59	GLUE ON	O	DMA glue circuit enable 0: OFF. 1: ON.
60	M EMPH	O	MPEG AUDIO emphasis 0: OFF. 1: ON.
61	FAI	O	System clock output.
62	$\overline{\text{STBY}}$	I	Standby. (Hardware standby mode at low level).
63	$\overline{\text{RES}}$	I	Reset input. (Reset at low).
64	NMI	I	Non-maskable interrupt. (Non-maskable interrupt is requested).
65	GND	I	GND.
66	EXTAL	I	External crystal is connected to this pin.
67	XTAL	I	External crystal is connected to this pin.
68	VCC	I	Power supply.
69	$\overline{\text{AS}}$	O	Address strobe signal.
70	$\overline{\text{RD}}$	O	External address read enable signal.
71	$\overline{\text{HWR}}$	O	External address high write enable signal.
72	$\overline{\text{LWR}}$	O	External address low write enable signal.
73~75	MOD0~MOD2	I	Mode terminal. Operating mode is set using this terminal.
76	AVCC	I	Power supply terminal of A/D converter and D/A converter.
77	VREF	I	Reference voltage input to A/D converter and D/A converter.

Pin No.	Pin Name	I/O	Description
78, 79	P70, P71	I	IN port 0, 1 for test.
80	PAL/NTSC	I	PAL/NTSC status 0: NTSC. 1: PAL.
81	REQ CD	I	Serial interface (REQ_CD).
82~85	P74~P77	I	Reserve.
86	AGND	I	GND terminal of A/D converter and D/A converter.
87	INT CDDR $\overline{V}$	I	Serial interface interrupt.
88	INT CDDEC	I	CD-ROM decoder interrupt.
89	INT MPEG	I	MPEG decoder interrupt.
90	IRQ3	I	Reserve.
91	P84	I	Reserve.
92	GND	I	GND.
93	DONE CDDEC	O	CD-ROM decoder DONE signal.
94	DONE MPEG	O	MPEG decoder DONE signal.
95	CDG VOFF	O	CD-G decoder video OFF signal. 1: VOFF.
96	SYS MUTE1	O	Audio mute 1 signal. 1: mute ON.
97	INTFLDO	I	EVEN/OFF input signal. 0: EVEN. 1: ODD.
98	SW AUDIO	O	Audio select signal. 0: CD-G/DA. 1: MPEG.
99	SYS MUTE0	O	Audio mute 0 signal. 0: mute on.
100	REQ MPEG	O	Serial interface (REQ MPEG)

IC, μ PD65622GF-239-3B9

Pin No.	Pin Name	I/O	Description
1	LRCKCD	O	Main data signal to CXD1186.
2	SDATACD	O	
3	BCKCD	O	
4	C2POCD	O	
5	$\overline{\text{CSROMH}}$	O	Chip select signal to CXD1186 (host side).
6	$\overline{\text{CSROMC}}$	O	Chip select signal to CXD1186 (CPU side).
7	$\overline{\text{DACKROM}}$	O	DMA acknowledge signal to CXD1186.
8	HDRQ	I	Data transfer request signal from CXD1186. This signal is active high.
9	$\overline{\text{ROMRD}}$	O	Read/write signal to CXD1186.
10	$\overline{\text{ROMWR}}$	O	Read/write signal to CXD1186.
11	EMPHI	I	This signal allows inputting the main data from the CD drive.
12	GND	—	GND.
13	SDATAI	I	This signal allows inputting the main data from the CD drive.
14	BCKI	I	
15	LRCKI	I	
16	C2POI	I	
17	GND	—	GND.
18	16.9M	I	16.9344 MHz oscillator circuit input signal.
19	16.9F	O	16.9344 MHz oscillator circuit output signal.
20	GND	—	GND.
21	GSFSY	I	Write frame clock signal used to input the sub data from CD drive.
22	EMPO	O	Main data signal to CXD1186.
23	LRCKO	O	Audio data signal to audio DAC.
24	SDATAO	O	Audio data signal to audio DAC.
25	RESET	O	Active high reset signal.
26	GND	—	GND.
27	BCKCO	O	Audio data signal to audio DAC.
28	$\overline{\text{GGLUE}}$	I	The input signal which makes the glue circuit valid from GSFSY input.
29	$\overline{\text{GGSFSY}}$	O	Not used.
30	SDATAMA	I	Audio data signal from μ PD61010.
31	BCKMA	I	
32	LRCKMA	I	
33	GND	—	GND.
34	VCC	—	Vcc.
35	$\overline{16.9M}$	O	16.9344 MHz output signal.
36	GND	—	GND.
37	$\overline{\text{DS}}$	O	Control signal to μ PD61010.
38	$\overline{\text{CSMPEG}}$	O	Chip select signal to CXD1186.
39	R/W	O	Control signal to μ PD61010.
40	INT	I	Interrupt request signal from μ PD61010. This signal is active high.
41	$\overline{\text{HDAK}}$	I	Data acknowledge signal from μ PD61010.

Pin No.	Pin Name	I/O	Description
42	$\overline{\text{DREQ}}$	I	DRAM data transfer request signal from $\mu\text{PD61010}$.
43	$\overline{\text{DACKMP}}$	O	DMA acknowledge signal to $\mu\text{PD61010}$.
44	$\overline{\text{DAK}}$	I	Bit stream data transfer request signal from $\mu\text{PD61010}$.
45	$\overline{\text{CSCCELL}}$	O	Chip select signal to standard cell.
46	GND	—	GND.
47	$\overline{\text{RESET}}$	I	System reset signal.
48	GND	—	GND.
49	$\overline{\text{CSRAM}}$	O	Chip select signal to the system RAM.
50	$\overline{\text{LWR}}$	I	Lower data write signal from CPU.
51	$\overline{\text{HWR}}$	I	Upper data write signal from CPU.
52	$\overline{\text{RD}}$	I	Data read signal from CPU.
53	GND	—	GND.
54	$\overline{\text{AS}}$	I	Address strobe signal from CPU.
55	$\overline{\text{CSIO}}$	O	Optional chip select signal.
56~63	A19~A12	I	Address signal from CPU.
64	GND	—	GND.
65	$\overline{\text{WAIT}}$	O	Wait signal to CPU.
66	GLUEON	I	This signal makes the glue logic valid in order to prevent CPU DMAC from trouble. This circuit is made valid at high.
67	$\overline{\text{SEL12}}$	I	Input signal to select 12 MHz or 16 MHz CPU clock.
68	EMPMA	I	Audio data signal from $\mu\text{PD61010}$.
69	GND	—	GND.
70	FAI	I	Basic clock signal (12 MHz) from CPU.
71	GND	—	GND.
72	VCC	—	Vcc.
73	GND	—	GND.
74	$\overline{\text{INTMPEG}}$	O	Interrupt request signal to CXD1186.
75	SWAUDIO	I	Selection signal between MPEG audio and CD-DA audio signals.
76	$\overline{\text{DRQI}}$	O	DMA transfer request signal to $\mu\text{PD61010}$.
77	$\overline{\text{DRQ0}}$	O	DMA transfer request signal to CXD1186.
78~80	GADSP2~0	I	Format select signal to convert format of the main data from CD drive.

IC, CXD1186CR

Pin No.	Pin Name	I/O	Description
1~4	A0~A3	I	CPU address signal.
5	HMDS	I	Host mode select signal.
6, 7	HA0, HA1	I	Host address signal.
8	XHCS	I	Chip select negative logic signal from the host.
9	HINT	O	Interrupt request negative logic signal to the host.
10	GND	—	GND.
11	XHRD	I/O	Data read strobe signal from the host or to the SCSI control IC.
12	XHWR	I/O	Data write strobe signal from the host or to the SCSI control IC.
13~20	HDB0~HDB7	I/O	Host data bus.
21	GND	—	GND.
22	HDBP	I/O	Error flag. Host data bus.
23	XRST	I	Reset negative logic signal.
24	HDRQ	O	Data request positive logic signal to the host. Or DMA acknowledge negative logic signal to the SCSI control IC.
25	XHAC	I	DMA acknowledge negative logic signal from the host Or data request positive logic signal from the SCSI control.
26	XTC	I	Terminal count negative logic signal.
27	ADRQ	I	DMA request positive logic signal from ADP.
28	XAAC	O	DMA acknowledge negative logic signal to ADP.
29, 30	BA0, BA1	O	Buffer memory address.
31	VDD	—	Power supply (+5 V) terminal.
32~39	BA2~BA9	O	Buffer memory address.
40	GND	—	GND.
41~46	BA10~BA15	O	Buffer memory address.
47	XMOE	O	Buffer memory output enable negative logic signal.
48	XMWR	O	Buffer memory write negative logic signal.
49	BDB0	I/O	Buffer memory data bus.
50	GND	—	GND.
51~57	BDB1~BDB7	I/O	Buffer memory data bus.
58	BDBP	I/O	Buffer memory pointer data bus.
59	XTL2	O	X'TAL oscillator circuit output terminal.
60	XTL1	I	X'TAL oscillator input terminal.
61	GND	—	GND.
62	HCLK	O	X'TAL 1 divided-by-2 clock signal.
63	LRCK	I	LR clock from CD player.
64	DATA	I	Serial data from CD player.
65	BCLK	I	Bit clock from CD player.
66	C2P0	I	C2 pointer from CD player.
67~70	DB0~DB3	I/O	CPU data bus.
71	VDD	—	Power supply (+5 V) terminal.
72~75	DB4~DB7	I/O	CPU data bus.

Pin No.	Pin Name	I/O	Description
76	XCS	I	Chip select negative logic signal from CPU.
77	XRD	I	IC internal register read-out strobe negative logic signal from CPU.
78	XWR	I	IC internal register write strobe negative logic signal from CPU.
79	INT	O	Interrupt request signal to CPU.
80	GND	—	GND.

IC, TLC29321PW

Pin No.	Pin Name	I/O	Description
1	VDD	—	Power supply terminal to the internal logic circuit.
2	VCO LS	I	VCO output frequency divide-by-2 divider select terminal. The VCO output frequency can be divided by 2 and output as this terminal is controlled by external logic.
3	VCOO	O	VCO output terminal. Goes to low level during inhibit.
4, 5	FIN-A, FIN-B	I	2 input terminal for edge difference detection between the reference frequency (fREF-IN) and the frequency from external counter. The fREF-IN is input to the FIN-A terminal normally, and the divided or multiplied frequency from external counter is input to the FIN-B terminal.
6	PFD O	O	PFD output terminal.
7	GND	—	Internal logic circuit GND terminal.
8	NC	—	N.C.
9	PFD IH	I	PFD inhibit function control terminal.
10	VCO IH	I	VCO inhibit function control terminal.
11	A GND	—	VCO GND.
12	VCO I	I	VCO control voltage input. The VCO oscillator control voltage is input from an external low-pass filter to form PLL.
13	RBIAS	I	External resistor is connected to this terminal for setting the VCO oscillation frequency. A bias resistor is connected between this terminal and power supply line to supply bias for internal VCO oscillation and for setting and adjusting the oscillating frequency.
14	A VDD	—	VCO power supply voltage terminal.

IC, HD49307

Pin No.	Pin No.	I/O	Description
1~5	G4~G8	I	Digital input terminal.
6	B1	—	N. C.
7	NC	I	Digital input terminal.
8~12	B2~B6	I	Digital input terminal.
13~15	NC	—	N. C.
16, 17	B7, B8	I	Digital input terminal.
18	NC	—	N. C.
19	RCLK	I	R channel clock input.
20	GCLK	I	G channel clock input.
21	BCLK	I	B channel clock input.
22	DVSS	—	Digital GND.
23	DVDD	—	Digital power supply.
24	NC	—	N. C.
25	CBU	—	External phase compensation capacitance connection terminal.
26	CBL	—	Bypass capacitance connection terminal.
27~29	NC	—	N. C.
30	VRREF	I	Reference voltage input terminal.
31	AVSS	—	Analog GND.
32	AVDD	—	Analog power supply.
33	BOUT	O	B channel analog signal output terminal.
34	AVDD	—	Analog power supply.
35	NC	—	N. C.
36	GOUT	O	G channel analog signal output terminal.
37	AVDD	—	Analog power supply.
38	ROUT	O	R channel analog signal output terminal.
39	AVSS	—	Analog GND.
40	AVDD	—	Analog power supply.
41	DVDD	—	Digital power supply.
42	R1	I	Digital input terminal.
43~44	NC	—	N. C.
45~51	R2~R8	I	Digital input terminal.
52~54	G1~G3	I	Digital input terminal.
55, 56	NC	—	N. C.

IC, μ PD61010

Pin No.	Pin Name	I/O	Description
1	VDD	—	+5 V power supply.
2~6	HD9~5	I/O	Host data bus.
7	VDD	—	+5 V power supply.
8	GND	—	GND.
9~13	HD4~0	I/O	Host data bus.
14	VDD	—	+5 V power supply.
15	GND	—	GND.
16	$\overline{\text{DREQ}}$	O	DMA request signal.
17	$\overline{\text{DACK}}$	I	DMA acknowledge signal.
18	HSEL	I	Signal to select the host CPU access method.
19	DRQ	I	Data input request for bit stream input from CD-ROM decoder.
20	VDD	—	+5 V power supply.
21	GND	—	GND.
22	$\overline{\text{DAK}}$	O	Data input response for bit stream input from CD-ROM decoder, or DMA input request for code input.
23	$\overline{\text{DRD}}$	O	Bit stream input approval signal.
24, 25	NC	—	N. C.
26~33	CD0~7	I	Data bus for bit stream input from CD-ROM decoder.
34	VDD	—	+5 V power supply.
35	GND	—	GND.
36~39	MD7~4	I/O	DRAM data bus.
40	VDD	—	+5 V power supply.
41, 42	GND	—	GND.
43~46	MD3~0	I/O	DRAM data bus.
47, 48	MD15, 14	I/O	DRAM data bus.
49	VDD	—	+5 V power supply.
50	GND	—	GND.
51~56	MD13~8	I/O	DRAM data bus.
57	VDD	—	+5 V power supply.
58	GND	—	GND.
59~64	MA0~5	O	DRAM address bus.
65	VDD	—	+5 V power supply.
66	GND	—	GND.
67~69	MA6~8	O	DRAM address bus.
70	$\overline{\text{RAS}} \text{ I}$	O	DRAM RAS signal.
71	$\overline{\text{RAS}} \text{ O}$	O	DRAM RAS signal.
72	$\overline{\text{CAS}}$	O	DRAM CAS signal.
73	VDD	—	+5 V power supply.
74	$\overline{\text{WE}}$	O	Write enable to DRAM.
75~77	NC	—	N. C.
78	VOE	I	Video data output enable.

Pin No.	Pin Name	I/O	Description
79, 80	GND	—	GND.
81	VDD	—	+5 V power supply.
82	NC	—	N. C.
83	FLDI	I	Field signal (odd/even)
84	HDI	I	Horizontal sync signal.
85	VDI	I	Vertical sync signal.
86	VDCLK	I	Video data output clock (13.5 MHz).
87	VDD	—	+5 V power supply.
88~91	VDATA23~20	O	Video data output bus.
92	GND	—	GND.
93	VDD	—	+5 V power supply.
94~97	VDATA19~16	O	Video data output bus.
98, 99	VDATA15, 14	O	Video data output bus.
100	VDD	—	+5 V power supply.
101	GND	—	GND.
102~105	VDATA13~10	O	Video data output bus.
106	VDD	—	+5 V power supply.
107	GND	—	GND.
108~112	VDATA9~5	O	Video data output bus.
113	VDD	—	+5 V power supply.
114	GND	—	GND.
115~119	VDATA4~0	O	Video data output bus.
120	VDD	—	+5 V power supply.
121, 122	GND	—	GND.
123	DO	O	Video data output bus.
124	BCK	O	Video data output clock.
125	LRCK	O	L/R channel identification signal.
126	MCLK	O	Audio master clock.
127	NC	—	N. C.
128	AUCLK	I	Internal audio decoder system clock.
129	VDD	—	+5 V power supply.
130~132	NC	—	N. C.
133	VDD	—	+5 V power supply.
134	RESET	I	Reset signal.
135	CLK	I	System clock (27 MHz)
136	GND	—	GND.
137	DS	I	Data strobe signal.
138	R/W	I	Read/write select.
139	CS	I	Chip select.
140~145	HADR0~5	I	Host address bus.
146, 147	GND	—	GND.

Pin No.	Pin Name	I/O	Description
148	INT	O	Interrupt signal.
149	HDAK	O	Bus cycle response signal.
150	VDD	—	+5 V power supply.
151	GND	—	GND.
152~157	HD15~10	I/O	Host data bus.
158	VDD	—	+5 V power supply.
159, 160	GND	—	GND.

IC, μ PD63210GT

Pin No.	Pin Name	I/O	Description
1	TSEL	I	Test selection input.
2	RST	I	Reset input.
3	XTO	O	External crystal oscillator is connected to this pin.
4	XTI	I	External crystal oscillator is connected to this pin.
5	MCKO	O	Master clock output.
6	CKSEL	I	Clock selection input.
7	CLK	I	Bit clock input.
8	SI	I	Data input.
9	LRCK	I	LR clock input.
10	DEFS1	I	Deemphasis selection input 1.
11	DEFS2	I	Deemphasis selection input 2.
12	DSEL	I	Double speed playback selection input..
13	SMUTE	I	Soft mute selection input.
14	BSEL	I	Data bit length selection input.
15	DGND	—	Digital GND.
16	AGND	—	Analog GND.
17	RO	O	D/A converter output (R channel).
18	AOR	O	Filter amplifier output (R channel).
19	ANIR	I	Filter amplifier (-) input (R channel).
20	APIR	I	Filter amplifier (+) input (R channel).
21	RREF	—	Reference (R channel).
22	LREF	—	Reference (L channel).
23	APIL	I	Filter amplifier (+) input (L channel).
24	ANIL	I	Filter amplifier (-) input (L channel).
25	AOL	O	Filter amplifier output (L channel).
26	LO	O	D/A converter output (L channel).
27	AVDD	—	Analog power supply.
28	DVDD	—	Digital power supply.

IC, TC170C100AF

Pin No.	Pin Name	I/O	Description
1~5	YIN4~0	I	Y signal from MPEG chip.
6	GND	—	GND.
7~14	UIN7~0	I	U signal from MPEG chip.
15	GND	—	GND.
16, 17	VIN7, 6	I	V signal from MPEG chip.
18	VCC	—	Power supply terminal.
19~24	VIN5~0	I	V signal from MPEG chip.
25	GND	—	GND.
26	FLDO	O	Odd/even signal output of a field.
27	HDO	O	HSYNC signal to MPEG chip.
28	VDO	O	VSYNC signal to MPEG chip.
29	PCP	O	Clamp signal output.
30	CBLK	O	Blanking signal output (used depending upon type of DAC).
31	GND	—	GND.
32	FSC	O	Sub carrier output (Divided-by-four of NTSC: 14.31818 MHz. PAL: 17.734475 MHz).
33	CDG/MPEG	O	CD-G or MPEG play selector signal to external RGB video selector.
34	TEST0	I	Operation mode setting terminal.
35	GND	—	GND.
36	13.5M	O	13.5 MHz output.
37	GND	—	GND.
38~43	R OUT7~2	O	Y/R signal output (Output format can be selectable in Y/R).
44	GND	—	GND.
45, 46	R OUT1, 0	O	Y/R signal output (Output format can be selectable in Y/R).
47~54	G OUT7~0	O	U/G signal output (Output format can be selectable in U/G).
55	VCC	—	Power supply terminal.
56~63	B OUT7~0	O	V/B signal output (Output format can be selectable in V/B).
64	GND	—	GND.
65	27M	I	27 MHz input.
66	TEST1	I	Operation mode setting terminal.
67	SHSYNC	O	Comparison clock for PLL synchronizing CLK.
68	MHSYNC	O	Reference clock for PLL synchronizing CLK.
69	VCC	—	Power supply terminal.
70	OSC1	I	14.31818 MHz input port (crystal oscillation) when supporting NTSC.
71	OSC2	O	NTSC: 14.31818 MHz crystal oscillation output terminal.
72, 73	GND	—	GND.
74	OSC3	I	17.734475 MHz input port (crystal oscillation) when supporting PAL.
75	OSC4	O	17.734475 MHz crystal oscillation output terminal.
76	VCC	—	Power supply terminal.
77, 78	TEST2, 3	I	Operation mode setting terminal.
79	FMOD	I	FLD0 output HL inversion selection signal.
80	PMOD	I	PCP output HL inversion selection signal.

Pin No.	Pin Name	I/O	Description
81	GND	—	GND.
82~85	T15~T12	I	RAM data input terminals 15 - 12 during RAM check.
86	T11OP3	I/O	OUT port terminals 3 - 0 (address 4). RAM data input terminals 11 - 8 during RAM check.
87	T10OP2	I/O	OUT port terminals 3 - 0 (address 4). RAM data input terminals 11 - 8 during RAM check.
88	T9OP1	I/O	OUT port terminals 3 - 0 (address 4). RAM data input terminals 11 - 8 during RAM check.
89	T8OP0	I/O	OUT port terminals 3 - 0 (address 4). RAM data input terminals 11 - 8 during RAM check.
90	VCC	—	Power supply terminal.
91	$\overline{\text{GHSYNC}}$	I	$\overline{\text{HSYNC}}$ signal from CD-G decoder.
92	$\overline{\text{GVSYNC}}$	I	$\overline{\text{VSYNC}}$ signal from CD-G decoder.
93	$\overline{\text{GCSYNC}}$	I	$\overline{\text{CSYNC}}$ signal from CD-G decoder.
94	GND	—	GND.
95~98	T7~4	I	RAM data input terminals 7 - 4 during RAM check.
99	T3IP3	I	IN port terminals 3 - 0 (address 5). RAM data input terminals 3 - 0 during RAM check.
100	T2IP2	I	IN port terminals 3 - 0 (address 5). RAM data input terminals 3 - 0 during RAM check.
101	T1IP1	I	IN port terminals 3 - 0 (address 5). RAM data input terminals 3 - 0 during RAM check.
102	TOIP0	I	IN port terminals 3 - 0 (address 5). RAM data input terminals 3 - 0 during RAM check.
103	GND	—	GND.
104	4FSC	O	104 NTSC: 14.31818 MHz. PAL: 17.734475 MHz buffer output.
105	GND	—	GND.
106	RAMCE	I	Chip enable signal for checking internal RAM and ROM check. (Fixed to low normally).
107	RAMW	I	Read/write signal for checking internal RAM and ROM check. (Fixed to low normally).
108	XT2C	I	XT2C input (used for $\overline{\text{HYNCS}}$ DL delay).
109	GND	—	GND.
110	$\overline{\text{RST}}$	I	Input port of the reset signal.
111	GND	—	GND.
112	$\text{PAL}/\overline{\text{NTSC}}$	I	PAL/NTSC selector port.
113	$\overline{\text{HSYNCIN}}$	O	Inverted output of $\overline{\text{HYNCS}}$ IN.
114	$\overline{\text{HSYNCIN}}$	I	$\overline{\text{SYNC}}$ signal from VST (only when supporting FMV engine).
115	$\overline{\text{VSYNCIN}}$	I	$\overline{\text{VSYNC}}$ from VSC. (only when supporting FMV engine).
116	GND	—	GND.
117~124	D7~0	I/O	CPU data bus signal.

Pin No.	Pin Name	I/O	Description
125	VCC	—	Power supply terminal.
126	CMOD	I	CLBK output HL inversion selection signal.
127	VOD	I	Video output disable.
128	VCD/FMV	I	VIDEO CD/DMV engine selection port.
129	$\overline{CS}$	I	Chip select signal.
130	$\overline{RD/LDS}$	I	READ signal from CPU $\overline{RD}$ (when supporting H8). $\overline{LD}$ (when supporting 680009).
131	$\overline{WR/R/W}$	I	WRITE signal from CPU $\overline{WR}$ (when supporting H8). R/W (when supporting 680009).
132~134	A2~0	I	Address signal from CPU.
135	H8/68	I	CPU H8-325/68000 selection port.
136	GND	—	GND.
137	$\overline{HSYNCO}$	O	Horizontal sync output.
138	$\overline{VSYNCO}$	O	Vertical sync output.
139	$\overline{CSYNCO}$	O	Composite sync output. $\overline{CSYNC}$ signal from video encoder.
140	SMOD	I	13.5 MHz $\uparrow \downarrow$ selection of SYNC signal output. Selection is possible at the final stage of $\overline{HDO}$, $\overline{VDO}$, $\overline{HSYNCO}$, $\overline{VSYNCO}$, $\overline{CSYNCO}$, SHYNC, PCP, CBLK, FLDO. (However, $\overline{HSYNCO}$, $\overline{VSYNCO}$, $\overline{CSYNCO}$ are supported during SYNC output of the CD-G decoder.)
141	VCC	—	Power supply terminal.
142~144	YIN7~5	I	Y signal from MPEG chip.

IC, MB89627

Pin No.	Pin Name	I/O	Description
1	CCLK	O	SSP, DSP Control Clock.
2	DATA	O	SSP, DSP Control Data.
3	SENS	I	SSP, DSP Status.
4	XLAT	O	SSP, DSP Command Latch.
5	XRST	O	SSP, DSP Reset.
6	TVMSW	O	OFF/NTSC/PAL/PAL60/PAL AUTO/AUTO/TEST. *NOTE
7	DMUTE	O	Digital Mute.
8	AMUTE	O	Analog Mute.
9	LDON	O	Servo PCB Power on.
10	VCDRST	O	Video CD Reset.
11	OPTON	O	Optical Digital Output ON.
12	VCC	—	A/D Converter VCC.
13	VCC	—	A/D Converter VREF.
14	VSS	—	A/D Converter VSS.
15	HOSTIRQ	I	Host CPU Interrupt Request.
16	SCOR	I	Subcode Sync 0. (Subcode IRQ)
17	ILSW	I	Inter Limit Switch.
18	VCDIRQ	I	Video CD Decoder Interrupt Request.
19	N. C.	I	Not used.
20	RST	I	CPU Reset.
21	MODE0	I	CPU MODE. (Pull-down)
22	MODE1	I	CPU MODE. (Pull-down)
23	CLKIN	O	8MHz System Clock.
24	CLKOUT	I	8MHz System Clock.
25	VSS	—	GND.
26	ALE	O	Address Latch Strobe.
27	RD	O	Data Read Strobe.
28	WR	O	Data Write Strobe.
29	CLK	O	Clock out.
30	READY	I	Video CD Decoder Ready.
31	OSDCS	O	OSDC Enable.
32	OSDCLK	O	OSDC Data Clock.
33	OSDSIN	O	OSDC Data.
34~41	A8~A15	O	Address Bus 8~15.
42~49	AD0~AD7	I/O	Address/Data Bus 0~7.
50	VSS	—	GND.
51	VCD/CDG	O	Video CD/CDG Switch.
52	HCLK	I	Host CPU Control Clock.
53	ST	O	Host CPU Control Send Data.
54	RT	I	Host CPU Control Receive Data.
55	TRACK	I	Travase Counter.

Pin No.	Pin Name	I/O	Description
56	ENCRST	O	Video Encoder Reset.
57	DVCC	—	DVCC.
58	PAL/PAL60	O	PAL/PAL60 Switch.
59	XNTSC	O	PAL/NTSC Switch.
60	SQCK	O	Subcode Q Read Clock.
61	SQSO	I	Subcode Q Serial Data.
62	BUSY	I/O	Host CPU I/F Busy Signal.
63	FOK	I	Focus Servo OK Detect.
64	GFS	I	Frame Sync Detect.

Note

- Analog input (TVMSW: 6 pin) of the microprocessor is divided into 7, then controlled.
- The output are the command setting (Set Video Format) to the two ports of PAL/PAL60 (58 pin), XNTSC (59 pin) and IC301 (CL484).

TVMSW (6 pins)		DISC encoding system	TV output mode	PAL/PAL60 (58 pins)	XNTSC (59 pins)	Set Video Format
Volt (V)	Mode					
5.00	OFF	—	Not used (NTSC output mode).			
4.58	NTSC	—	NTSC	H	L	NTSC
3.75	PAL	—	PAL	H	H	PAL
2.92	PAL60	—	PAL60	L	H	NTSC
2.08	PAL AUTO	NTSC	PAL60	L	H	NTSC
		PAL	PAL	H	H	PAL
1.25	AUTO	NTSC	NTSC	H	L	NTSC
		PAL	PAL	H	H	PAL
0.42	TEST	—	For servo circuit adjustment (NTSC output mode).			
0.00						

- *1 As to identification of the disc encoding system, it is identified from the V_SIZE (1A1h/word) of the MPEG data.
- *2 “For servo circuit adjustment” is the process during adjustment (when variable resistor is operated by service engineer) that the microprocessor enters the emergency process routine if the servo system goes extremely out of the servo range.
- *3 In addition to the above, ENCRST (56 pin) is the reset signal for TV encoder, issues the active “L” pulse when each of the input port of CDGSW, NTB, CVSY, HSY, PIXCLK, GCLK, PAL60B and VCLK of IC401 (BU1417AK) has changed as follows:
- ① When the power is supplied to the circuit boards of the CD block,
 - ② When starting to reach TOC.
 - ③ The modes have changed as follows:
 - TVMSW is switched.
 - Switching of encoding system owing to exchange of video CD disc
 - Exchange of video CD disc with the CD-DA or CD-G.

IC, CL484

Pin No.	Pin Name	I/O	Description
1	HSEL2	I	Host address bus.
2	-DS	I	Data strobe.
3	R/-W	I	Read/write.
4	CFLEVEL	O	Coded data FIFO level status. Open drain.
5	-DACK	O	Host data acknowledge. Open drain.
6	HD0	I/O	Host data bus.
7	VDD3	—	Power supply pin. Used in 3.3 V.
8, 9	HD1, HD2	I/O	Host data bus.
10	VSS	—	GND.
11~15	HD3~HD7	I/O	Host data bus.
16	VSS	—	GND.
17	-TEST	I	Test terminal. Normally fixed to High.
18	VSS	—	GND.
19	XTL IN	I	Global clock. 40.5 MHz.
20	XTL OUT	O	Global clock. 40.5 MHz.
21, 22	VDD3	—	Power supply pin. Used in 3.3 V.
23~28	MD0~MD5	I/O	Memory data bus.
29	VDD3	—	Power supply pin. Used in 3.3 V.
30, 31	MD6, MD7	I/O	Memory data bus.
32, 33	-MCE0, -MCE1	O	Chip enable.
34~37	MD8~MD11	I/O	Memory data bus.
38	VSS	—	GND.
39~42	MD12~MD15	I/O	Memory data bus.
43	VDDMAX	—	Power supply pin. Used in 5.0 V.
44	-LCAS	O	Lower digit, column address strobe.
45	-LCASIN	I	Lower digit, data latch enable.
46	VSS	—	GND.
47	-MWE	O	Write enable.
48	-UCAS	O	Higher digit, column address strobe.
49	VDD3	—	Power supply pin. Used in 3.3 V.
50	-UCASIN	I	Higher digit, data latch enable.
51, 52	RAS0, RAS1	O	Lower address strobe.
53~57	MA9~MA5	O	Memory address bus.
58	VSS	—	GND.
59~63	MA4~MA0	O	Memory address bus.
64	RESERVED	—	Reserved.
65	VDD3	—	Power supply pin. Used in 3.3 V.
66~72	VD0~VD6	O	Pixel data bus. RGB or YCbCr format.
73	VSS	—	GND.
74~76	VD7~VD9	O	Pixel data bus. RGB or YCbCr format.
77	VDD3	—	Power supply pin. Used in 3.3 V.

Pin No.	Pin Name	I/O	Description
78~80	VD10~VD12	O	Pixel data bus. RGB or YCbCr format.
81	VDD3	—	Power supply pin. Used in 3.3 V.
82~84	VD13~VD15	O	Pixel data bus. RGB or YCbCr format.
85	VSS	—	GND.
86~89	VD16~VD19	O	Pixel data bus. RGB or YCbCr format.
90	VSS	—	GND.
91~94	VD20~VD23	O	Pixel data bus. RGB or YCbCr format.
95	-VSYNC or CSY	I/O	Vertical sync signal.
96	-HSYNC	I/O	Horizontal sync signal.
97	-VOE	I	Video output enable.
98	VDD3	—	Power supply pin. Used in 3.3 V.
99	VCLK	I/O	Video clock.
100	VSS	—	GND.
101	-RESET	I	Hardware reset.
102	VSS	—	GND.
103	CD-C2PO	I	Data error. Used during CD-ROM data input.
104	CD-LRCK	I	LR clock.
105	CD-DATA	I	Serial data input from CD-DSP.
106	CD-BCK	I	Bit clock from CD decoder.
107	DA-LRCK	O	LR clock.
108	DA-DATA	O	Bit serial audio sample signal.
109	DA-BCK	O	Audio bit clock.
110	VDD3	—	Power supply pin. Used in 3.3 V.
111	DA-XCLK	I	External audio frequency clock.
112	VDD3	—	Power supply pin. Used in 3.3 V.
113	-INT	O	Interrupt request.
114	CDG-S0S1	I	Block start sync.
115	HOST_ENA	I	Host enable.
116	RAM_ENA	I	Boot ROM enable.
117	CDG-VFSY	I	Frame start or composite sync.
118	DAC_EMP	O	Output emphasis flag.
119	CDDA_EMP	I	Input emphasis flag.
120	CDG-SDATA	I	Subcode data.
121	CDG-SCLK	I/O	Subcode data clock.
122	CDDA/VCD	O	Input data identification. H: CDDA. L: video CD.
123	VDDMAX	I	Power supply pin. Used in 5.0 V.
124	FSC1	O	Output generated by dividing-by-4 the pin-126 input CLK.
125	VSS	—	GND.
126	FSC4	I	Frequency divider input.
127, 128	HSEL0, HSEL1	I	Host address bus.

IC, BU1417AK

Pin No.	Pin Name	I/O	Description
1	BOSD	I	OSD Blue Data input.
2	GD0	I	Green Data Bit 0. (LSB)
3~8	GD1~GD6	I	Green Data Bit 1~6.
9	GND	—	Digital ground.
10	GD7	I	Green Data Bit 7. (MSB)
11	BD0	I	Blue Data Bit 0. (LSB)
12~14	BD1~BD3	I	Blue Data Bit 1~3.
15	OSDSW	I	OSD input enable.
16	CDGSWB	I	Select Video-CD/CD-G.
17~19	BD4~BD6	I	Blue Data Bit 4~6.
20	BD7	I	Blue Data Bit 7. (MSB)
21	GND	—	Digital ground.
22	NTB	I	Select $\overline{\text{NTSC}}$ /PAL mode.
23, 24	IM0, IM1	I	Input mode set Bit 0, 1.
25, 26	TEST1, TEST2	I	Normally pulldown to GND.
27	CVSY	I	C-SYNC or V-SYNC input.
28	HSY	I	H-SYNC input.
29	PIXCLK	O	1/2 Freq. of internal CL.
30	BLKB	I	Data blanking $\overline{\text{ENABLE}}$.
31	VDD	—	Digital VDD.
32	INT	I	$\overline{\text{INTERLACE/}}\overline{\text{NON-INTERLACE}}$.
33	SLABEB	I	Set mode MASTER/SLABE.
34	ADDH	I	ADD One_line at Non-inter.
35	VREF	I	Reference voltage. (1.29V)
36	CGND	—	Chroma output ground.
37	COUT	O	Chroma output.
38	VGND	—	Composite output ground.
39	VOUT	O	Composite output.
40	AVSS	—	Analog (DAC, VREF) ground.
41	NC	—	Not used.
42	IR	I	Reference resistor. (1.2K)
43	AVDD	—	Analog (DAC, REF) VDD.
44	YGND	—	Luminance output ground.
45	YOUT	O	Luminance output.
46	G4FSC	I	Pulldown to GND.
47	GCLK	I	Video clock input for CD-G.
48	YCOFF	I	DAC (YOUT, COUT) off.
49	YFILON	I	Pulldown to GND.
50	PAL60B	I	$\overline{\text{PAL60 ON}}$ at NTB=HIGH.
51	VCLK	I	Video clock input for VCD.
52	RSTB	I	Logic part initial reset.

Pin No.	Pin Name	I/O	Description
53	CLKSW	I	Divide input CLK ENABLE.
54	RD0	I	Red data Bit 0. (LSB)
55, 56	RD1, RD2	I	Red data Bit 1, 2.
57	ROSD	I	OSD Red data input.
58~60	RD3~RD5	I	Red data Bit 3~5.
61	VDD	—	Digital VDD.
62	RD6, RD7	I	Red data Bit 6, 7.
63	GOSD	I	OSD green data input.

IC, BU2173AF

Pin No.	Pin Name	I/O	Description
1	VDD	—	Digital VDD.
2	TSTO	O	Open during normal mode. (Used in test mode.)
3	XTALI	I	Reference oscillator input.
4	XTALO	O	Reference oscillator output.
5	CTRLA	I	CD-G/VCD clock selector terminal.
6	CTRLB	I	Fixed to "H" during normal mode.
7	CTRLC	I	CD-G PAL/NTSC clock selector terminal.
8	TSTI	I	Connected to Vss during normal mode. (Used in test mode.)
9	VSS	—	Digital GND.
10	AVSS	—	Analog GND.
11	FOUT3	O	Not used. Open during normal mode.
12	VSSIO	—	I/O GND.
13	FOUT2	O	Clock output (2).
14	TEST	—	Test mode setting. Connected to Vss during normal mode.
15	FOUT1	O	Clock output (1).
16	VDDIO	—	I/O VDD.
17	FOUT4	O	Clock output (4).
18	AVDD	—	Analog VDD.

TEST MODE

1. How to Activate CD Test Mode

Insert the AC plug while pressing the function CD button.
All FL display tubes will light up, and the test mode will be activated.

2. How to Cancel CD Test Mode

Either one of the following operations will cancel the CD test mode.

- Press the function button.
- Press the power switch button. (except CD function button)
- Disconnect the AC plug

3. CD Test Mode Functions

When test mode is activated, the following mode functions from No.1 to No.5 can be used by pressing the operation keys.

Mode/No.	Operation	FL display	Operation	Contents
Start mode No.1	Activation	All lamps light	• Test mode is activated. • Laser diode turns always ON. (CD block power is ON.)	• FL display check (All displays light.) • APC circuit check • Laser current measurement (Laser current control. Across a resistor connected between emitter and GND.)
Search mode No.2	■ key		• Continual focus search (The pickup lens repeats the full-swing up-down motion.) * Avoid continual searches that last for more than 10 minutes. * NOTE 1	FOCUS SERVO • Check focus search waveform • Check focus error waveform (FOK/FZC are not monitored in the search mode)
Play mode No.3	◀▶ key		• Normal playback • Focus search is continued if TOC cannot be read. * NOTE 1	FOCUS SERVO/TRACKING SERVO CLV SERVO/SLED SERVO Check FOK/FZC
Traverse mode No.4	key		• During normal disc playback Press once; tracking servo OFF Press twice; tracking servo ON * NOTE 2	TRACKING SERVO ON/OFF Tracking balance (traverse) adjustment
Sled mode No.5	◀◀ key ▶▶ key	All lamps light	• Pickup moves to the outermost track • Pickup moves to the innermost track * NOTE 3 (During playback, machine operates normally.)	SLED SERVO Check SLED mechanism operation

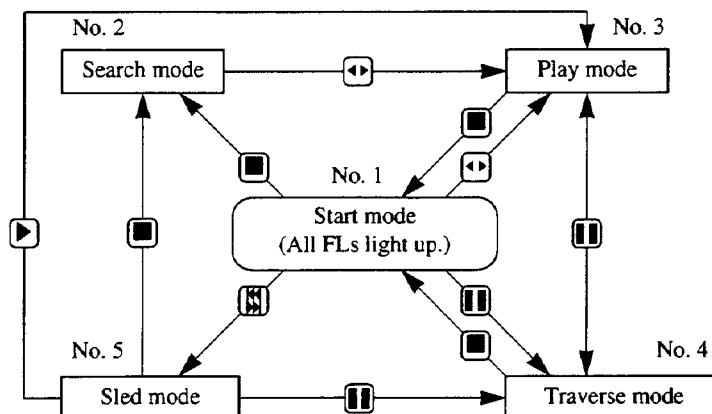
* NOTE 1: There are cases when the tracking servo cannot be locked owing to the protection circuit being operated when heat builds up in the driver IC if the focus search is operated continually for more than 10 minutes. In these cases the power supply should be switched off for 10 minutes until heat has been reduced and then re-started.

* NOTE 2: Do not press the ◀◀ or ▶▶ keys when the machine is in the || status is active. If they are pressed, playback will not be possible after the || status has been canceled. If the ◀◀ or ▶▶ keys are pressed in the || status, press the ■ key and return to the start mode (No.1).

* NOTE 3: When pressing the ◀◀ or ▶▶ keys, take care to avoid damage to the gears. Because the sled motor is activated when the ◀◀ or ▶▶ keys are pressed, even when the pick-up is at the outermost or innermost track.

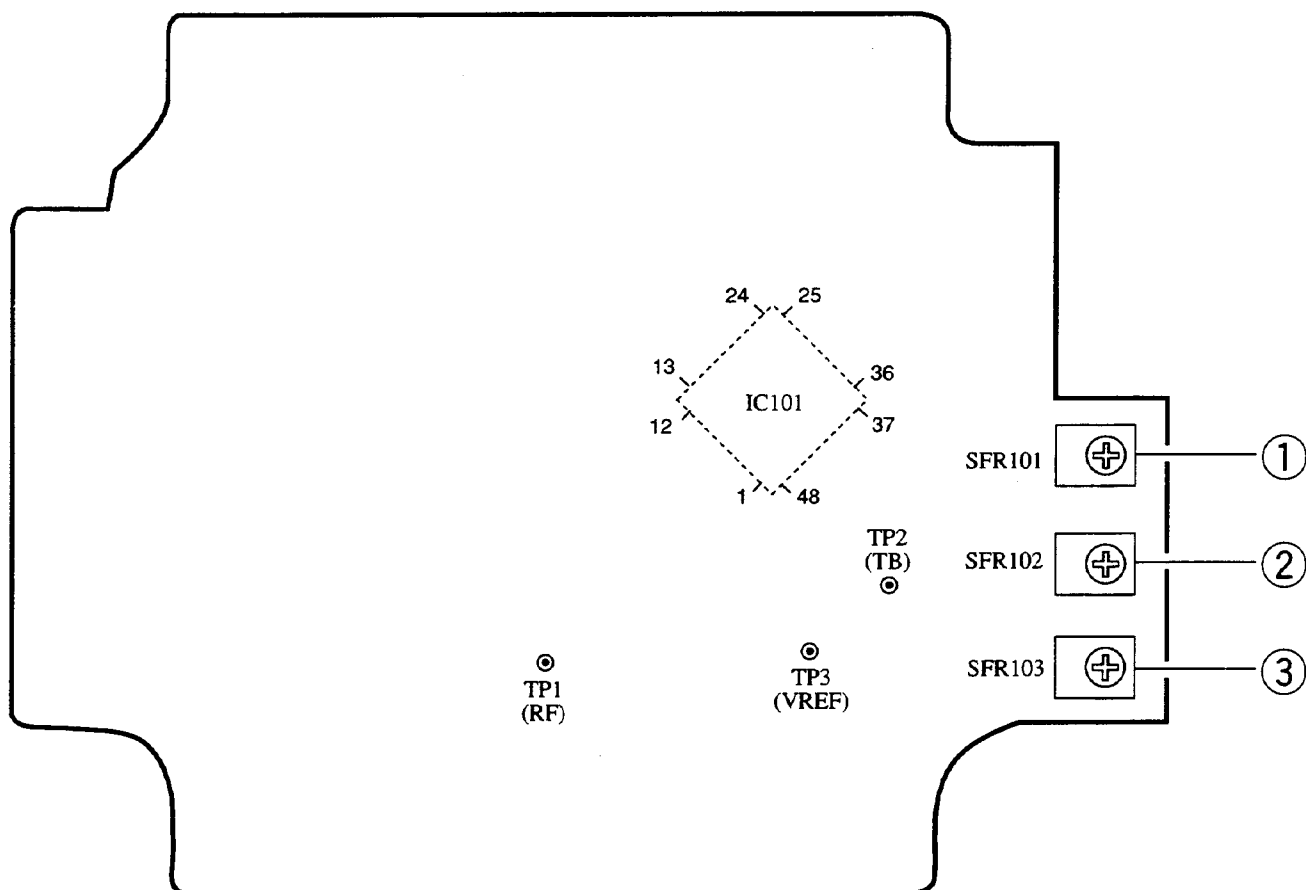
4. Operation Outline

The operation of each mode is carried out in the direction of the arrows from the start mode as indicated in the following illustration.



If the DISC DIRECT PLAY button is pressed, the machine performs the same operation as the PLAY button is pressed as shown. If the tray is opened by pressing OPEN/CLOSE button during Play mode or Traverse mode, the machine returns to the Start mode.

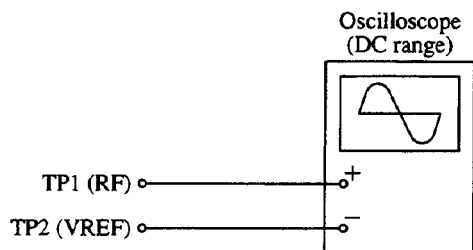
B CD MECHA C.B



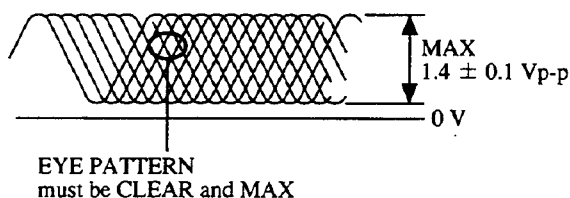
Note: Connect a probe (10: 1) of the oscilloscope or the frequency counter to a test point.

1. Focus Bias Adjustment

Make the focus bias adjustment when replacing and repairing the optical block.

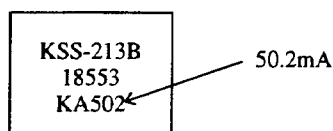


- 1) Connect an oscilloscope to test points TP1 (RF) and TP2 (VREF).
- 2) Turn on the power switch.
- 3) Insert test disc TCD-782 (YEDS-18) and play back the second composition.
- 4) Adjust SFR101 so that RF signal of test point TP1 (RF) is MAX and CLEARREST.



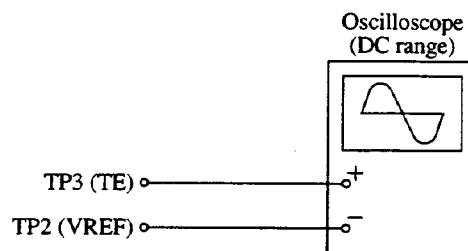
VOLT/DIV : 50mV
TIME/DIV : 0.5μS

Note: The current of the laser signal can be checked with the voltages on both sides of R127 (10Ω). The difference for the specified value shown on the level must be within ± 6.0mA.

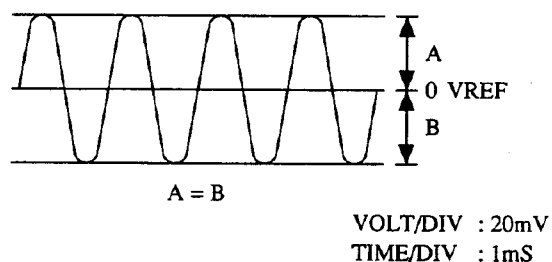


$$\text{Laser current } I_{op} = \frac{\text{Voltage across R127}}{10\Omega}$$

2. Tracking Balance Adjustment



- 1) Connect an oscilloscope to test points TP3 (TE) and TP2 (VREF).
- 2) Turn on the power switch.
- 3) Insert test disc TCD-782 (YEDS-18) and press the PLAY button.
- 4) Adjust SFR103 to decrease the tracking gain.
- 5) Adjust SFR102 so that the waveform on the oscilloscope is vertically symmetrical as shown in the figure below.
- 6) After the adjustment is completed, remove the connected lead wires from the terminals.



3. Tracking Gain Adjustment

A servo analyzer is necessary in order to perform this adjustment exactly. However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when 2-axis device operates. However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise increases when the 2-axis device operates.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.

When the gain adjustment is off, the symptoms below appear.

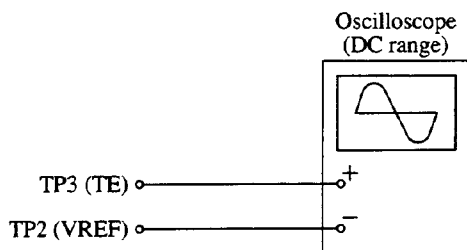
Symptoms \ Gain	(Focus)	Tracking
● The time until music starts becomes longer for STOP→▶PLAY or automatic selection (◀◀, ▶▶ buttons pressed.) (Normally takes about 2 seconds.)	low	low or high
● Music does not start and disc continues to rotate for STOP→▶PLAY or automatic selection (◀◀, ▶▶ buttons pressed.)	—	low
● Disc stops to rotate shortly after STOP→▶PLAY.	low or high	—
● Sound is interrupted during PLAY. Or time counter display stops.	—	low
● More noises during the 2-axis device operation.	high	high

The following is simple adjustment method.

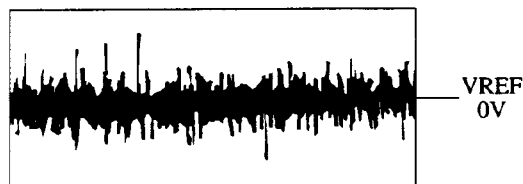
— Simple adjustment —

Note: Since the exact adjustment cannot be performed, remember the positions of the controls before the performing the adjustment. If the positions after the simple adjustment are only a little different, return the controls to the original position.

Procedure:



- 1) Keep the set horizontal. (If the set is not kept horizontally, this adjustment cannot be performed due to the gravity against the 2-axis device.)
- 2) Insert test disc TCD-782 (YEDS-18) and play back the second composition.
- 3) Connect an oscilloscope to TP3 (TE), TP2 (VREF) of the CD MECHA C.B.
- 4) Adjust SFR103 so that the waveform appears as shown in the figure below. (tracking gain adjustment)

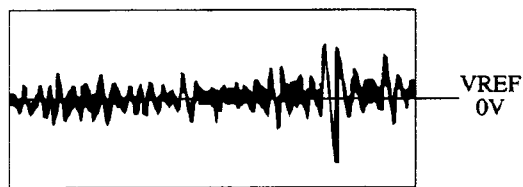


VOLT/DIV: 50 mV
TIME/DIV: 1mS

● Incorrect example

Low tracking gain

The fundamental wave appears as compared with the waveform adjusted.



VOLT/DIV: 50 mV
TIME/DIV: 1mS

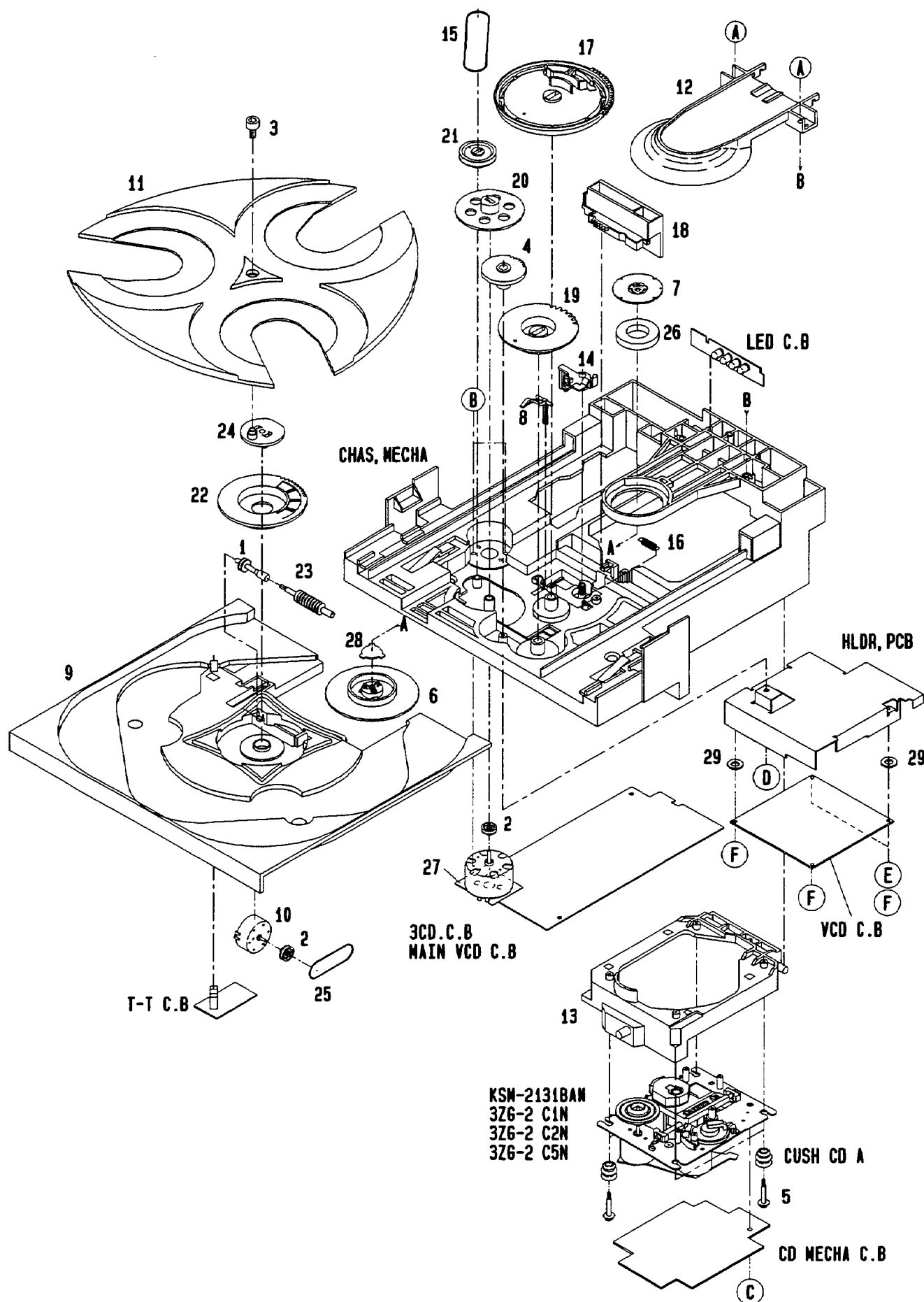
High tracking gain

The frequency of the fundamental wave is higher than that in low gain.



VOLT/DIV: 50 mV
TIME/DIV: 1mS

MECHANICAL EXPLODED VIEW 1 / 1

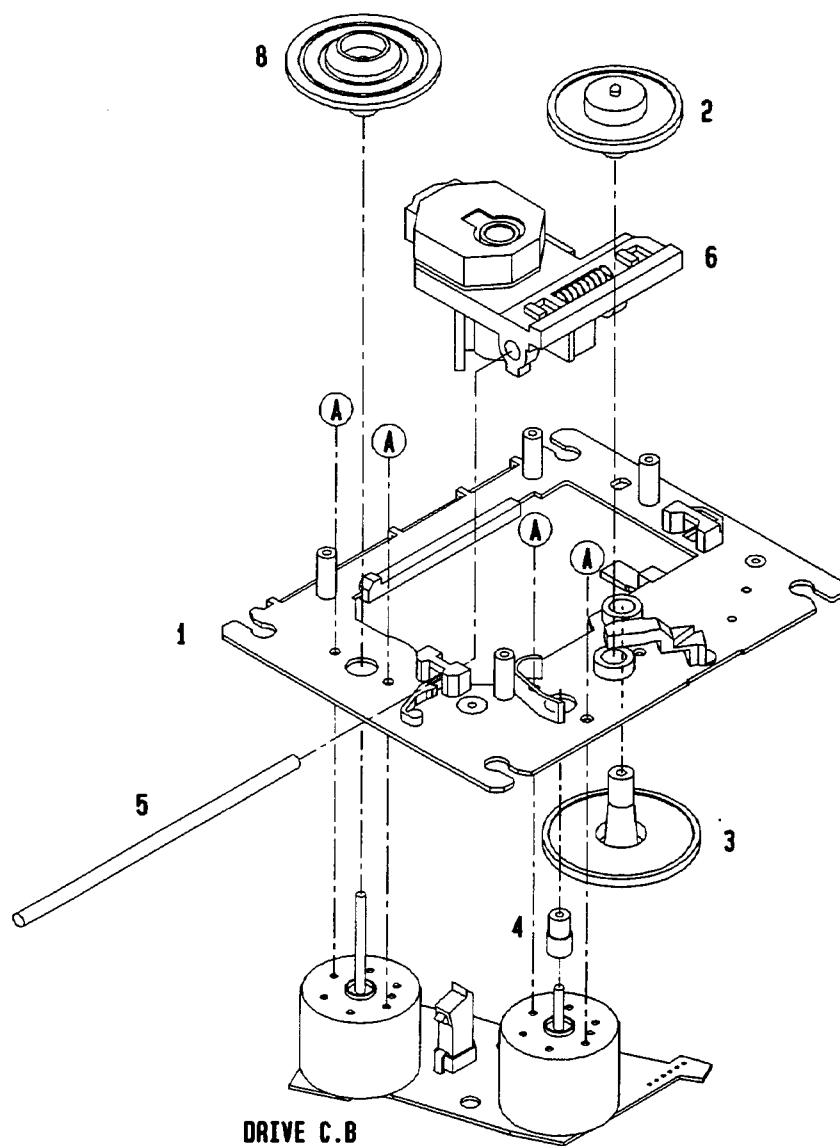


MECHANICAL PARTS LIST 1 / 1

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF. NO	PART NO.	カリ NO.	DESCRIPTION	REF. NO	PART NO.	カリ NO.	DESCRIPTION
1	84-ZG1-239-11K		PULLY, WORM N	20	84-ZG1-206-119		GEAR, RELAY
2	81-ZG1-212-01K		PULLY, LOAD MC	21	84-ZG1-219-019		PULLY, RELAY BGE
3	81-ZG1-239-019		S-SCREW, TT	22	84-ZG1-221-019		GEAR, MAIN TT
4	81-ZG1-291-019		GEAR, TRAY RELAY NO3	23	84-ZG1-238-01K		GEAR, WORM N
5	81-ZG1-271-019		S-SCREW, MECH REAR	24	84-ZG1-224-019		LEVER, TT
6	81-ZG1-277-219		HLD, MAGNET N	25	84-ZG1-225-010		BELT, SQ1.0-63.3
7	81-ZG1-255-119		PLATE, MAGNET MK2	26	87-036-326-010		MAGNET, CLAMPER 93<A, B, Z, WR, V5>
8	83-ZG3-213-019		LVR, SW	26	83-ZG3-602-010		RING, MAG<V3L, V4L>
9	84-ZG1-003-219		TRAY, NO2-B	27	80-CD3-214-019		CUSH CD A
10	87-045-364-019		MOTOR, (BCH3B14)	28	84-ZG1-248-019		SPR-C, WORM
11	84-ZG1-005-119		TURNTABLE, NO1	29	82-DW1-220-019		SPACER, DIA 3.6-8-0.24<V3L>
12	84-ZG1-010-019		IND, CD N<V3L, V4L>	A	87-067-703-019		BVT2+3-10 (W/O SLOT) <EXCEPT WR>
12	84-ZG1-011-019		REFLECTOR, CD<A, B, Z, V5>	B	87-251-070-419		U+2.6-3<Z>
13	84-ZG1-212-119		HLD, MECHA NO2	C	87-342-036-219		UT2+2-8<V3L, V4L, V5>
14	84-ZG1-208-019		LEVER, CAM	D	87-067-579-019		BVT 2+3-8 W/O SLOT<V3L, V4L>
15	84-ZG1-209-010		BELT, SQ1.8-117.7	E	81-557-598-010		UTT+2-5 C-TITE<V4L>
16	84-ZG1-211-019		SPR-E CAM S	F	87-067-767-019		BVT+2.6-6<V3L>
17	84-ZG1-215-219		GEAR, MAIN CAM BLU	G	87-067-058-019		FW, 3.2-8-0.5<V4L>
18	84-ZG1-216-219		SLIDE, MECHA CAM YEL				
19	84-ZG1-205-119		GEAR, TRAY				

CD MECHANISM EXPLODED VIEW 1 / 1 (3ZG-2 C5N <WR>)

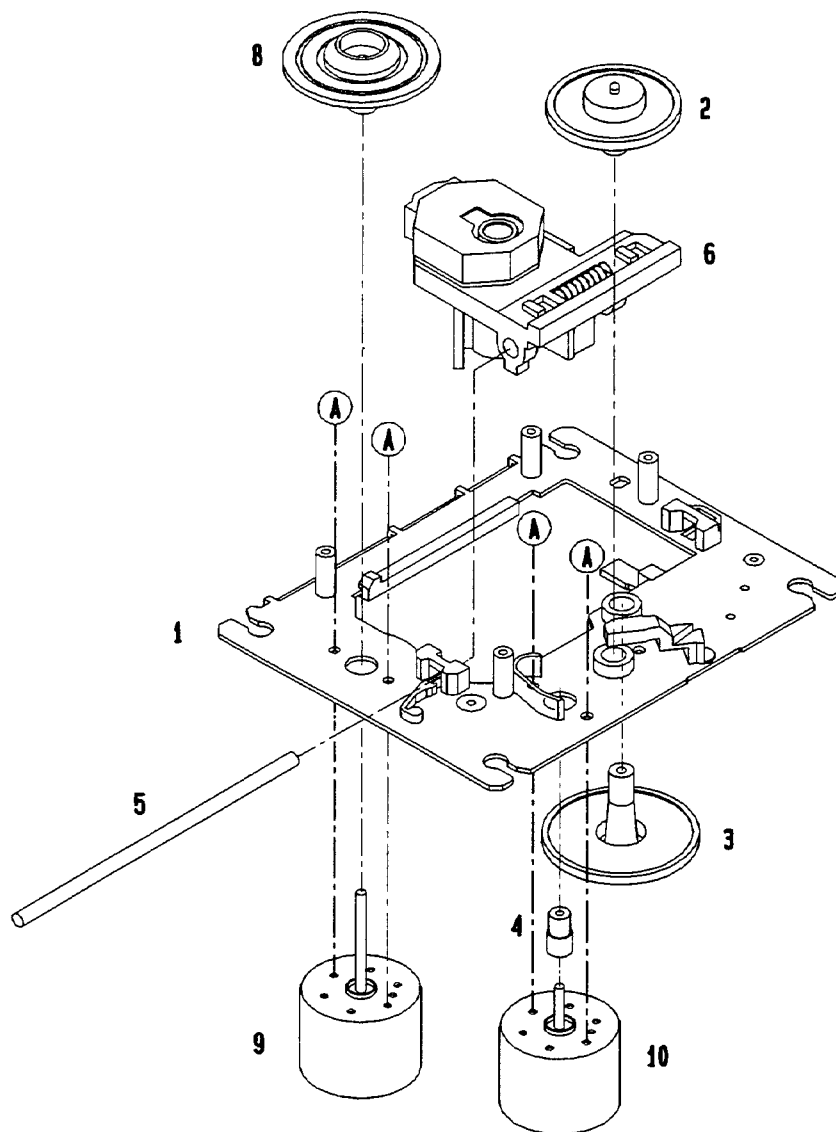


CD MECHANISM PARTS LIST 1 / 1 (3ZG-2 C5N <WR>)

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF. NO	PART NO.	カンリ NO.	DESCRIPTION	REF. NO	PART NO.	カンリ NO.	DESCRIPTION
1	83-ZG2-202-71K		O-SERT S ASSY, S	6	87-070-445-010		PICK-UP, KSS-213B
2	83-ZG2-204-419		GEAR, A	8	83-ZG2-227-01K		TURN TABLE, C1
3	83-ZG2-205-219		GEAR, B	A	87-261-032-219		SCREW V+2-3
4	83-ZG2-220-01K		GEAR MOTOR 2				
5	83-ZG2-207-119		SHAFT, SLIDE				

CD MECHANISM EXPLODED VIEW 1 / 1 (3ZG-2 C1N <V3L/V4L/V5>)



CD MECHANISM PARTS LIST 1 / 1 (3ZG-2 C1N <V3L/V4L/V5>)

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF. NO	PART NO.	カンリ NO.	DESCRIPTION	REF. NO	PART NO.	カンリ NO.	DESCRIPTION
1	83-ZG2-202-71K		O-SERT S ASSY, S	6	87-070-445-010		PICK-UP, KSS-213B
2	83-ZG2-204-419		GEAR, A	8	83-ZG2-233-019		TURN TABLE, A5
3	83-ZG2-205-219		GEAR, B	9	87-045-358-019		MOT, RF-310T A 43
4	83-ZG2-220-01K		GEAR MOTOR 2	10	87-045-356-019		MOT, RF-310T A 30
5	83-ZG2-207-119		SHAFT, SLIDE	A	87-261-032-219		SCREW V+2-3

4ZG-1A

ELECTRICAL MAIN PARTS LIST

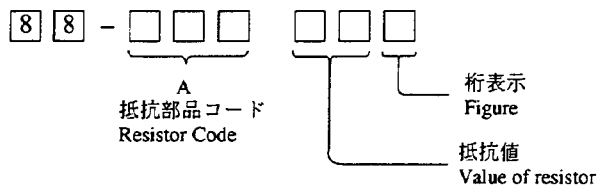
DESCRIPTION で判断できない物は“REFERENCE NAME LIST”を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	カンリ NO.	DESCRIPTION	REF. NO.	PART NO.	カンリ NO.	DESCRIPTION
IC				C170	87-010-263-089		CAP,E 100-10 SME 5X11
	87-070-294-019	IC,CXD2508AQ		C171	87-010-178-089		C-CAP,S 1000P-50 B
	87-017-745-019	IC,CXA1782BQ		C172	87-010-198-089		C-CAP,S 0.022-25 B
	87-017-888-089	IC,NJM4558MD		C173	87-010-196-089		C-CAP,S 0.1-25 F
	87-070-305-019	IC,BA6897S		C174	87-010-197-089		C-CAP,S 0.01-25 B
	87-001-982-019	IC,TA7291S					
	87-017-802-010	IC,LC7872E<G>		C175	87-010-263-089		CAP,E 100-10 SME 5X11
	87-017-803-010	IC,LC32464P-80<G>		C176	87-010-248-089		CAP,E 220-10 SME
				C177	87-010-197-089		C-CAP,S 0.01-25 B
				C178	87-010-260-089		CAP,E 47-25 SME
				C179	87-010-196-089		C-CAP,S 0.1-25 F
TRANSISTOR				C180	87-010-196-089		C-CAP,S 0.1-25 F
	87-026-239-089	C-TR,DTC114TK		C201	87-010-318-089		C-CAP,S 47P-50 CH
	89-110-373-089	C-TR,2SA1037 S		C202	87-010-318-089		C-CAP,S 47P-50 CH
	89-420-052-089	TR 2SD2005Q (T105)		C203	87-010-321-089		C-CAP,S 82P-50 CH
	89-421-722-389	TR,2SD2172 V/W		C204	87-010-321-089		G-CAP,S 82P-50 CH
	89-320-011-089	TR,2SC2001K					
	87-026-223-089	C-TR,DTC143TK		C205	87-010-321-089		C-CAP,S 82P-50 CH
	89-113-187-089	TR,2SA1318TU		C206	87-010-321-089		C-CAP,S 82P-50 CH
	87-026-608-089	C-TR,DTC 123 JK		C207	87-012-153-089		C-CAP,S 120P-50 CH
	89-406-555-089	TR,2SD655E<G>		C208	87-012-153-089		C-CAP,S 120P-50 CH
	87-A30-039-040	C-TR,2SD1383K<D>		C209	87-012-153-089		C-CAP,S 120P-50 CH
DIODE				C210	87-012-153-089		C-CAP,S 120P-50 CH
	87-020-465-089	DIODE,1SS133		C211	87-010-405-049		CAP,E 10-50 SME
	87-020-330-089	C-DIODE,DAP202K		C212	87-010-405-049		CAP,E 10-50 SME
				C213	87-010-186-089		C-CAP,S 4700P-50 B
				C214	87-010-186-089		C-CAP,S 4700P-50 B
3CD C.B				C231	87-010-112-089		CAP,E 100-16 11L
C101	87-010-194-089	C-CAP,S 0.047-25 F		C232	87-010-060-049		CAP,E 100-16 7L
C102	87-010-180-089	C-CAP,S 1500P-50 B		C301	87-010-196-089		C-CAP,S 0.1-25 F
C103	87-018-134-089	CAP,TC-U 0.01-16 Y		C302	87-010-260-089		CAP,E 47-25 SME
C104	87-012-156-089	C-CAP,S 220P-50 CH		C501	87-010-221-049		CAP,E 470-10 SME
C105	87-015-698-049	CAP,E 4.7-50 7L					
C106	87-010-060-049	CAP,E 100-16 7L		C502	87-010-197-089		C-CAP,S 0.01-25 B
C107	87-010-197-089	C-CAP,S 0.01-25 B		C503	87-010-263-089		CAP,E 100-10 SME 5X11
C108	87-016-461-089	C-CAP,S 0.47-16 F		C504	87-010-196-089		C-CAP,S 0.1-25 F
C109	87-010-197-089	C-CAP,S 0.01-25 B		C505	87-010-196-089		C-CAP,S 0.1-25 F
C115	87-010-318-089	C-CAP,S 47P-50 CH		C506	87-010-196-089		C-CAP,S 0.1-25 F
C116	87-010-318-089	C-CAP,S 47P-50 CH					
C117	87-010-197-089	C-CAP,S 0.01-25 B		C507	87-010-196-089		C-CAP,S 0.1-25 F
C118	87-010-260-089	CAP,E 47-25 SME		C508	87-010-221-049		CAP,E 470-10 SME
C119	87-018-134-089	CAP,TC-U 0.01-16 Y<EXCEPT G>		C509	87-010-196-089		C-CAP,S 0.1-25 F
C120	87-018-209-080	CAP,TC-U 0.1-50 F		C510	87-010-196-089		C-CAP,S 0.1-25 F
C121	87-018-134-089	CAP,TC-U 0.01-16 Y		C511	87-010-185-089		C-CAP,S 3900P-50 B
C151	87-010-182-089	C-CAP,S 2200P-50 B					
C152	87-010-196-089	C-CAP,S 0.1-25 F		C601	87-010-197-089		C-CAP,S 0.01-25 B
C153	87-010-196-089	C-CAP,S 0.1-25 F		C602	87-010-381-089		CAP,E 330-16 SME
C154	87-010-196-089	C-CAP,S 0.1-25 F		C603	87-010-196-089		C-CAP,S 0.1-25 F
C155	87-010-404-089	CAP,E 4.7-50 SME		C604	87-010-137-080		CAP,E,22-16 BP
C156	87-010-193-089	C-CAP,S 0.033-25 F		C701	87-010-322-089		C-CAP,S 100P-50 CH
C157	87-010-197-089	C-CAP,S 0.01-25 B					
C158	87-010-401-089	CAP,E 1-50 SME		C702	87-010-322-089		C-CAP,S 100P-50 CH
C159	87-010-382-089	CAP,E 22-25 SME		C703	87-010-318-089		C-CAP,S 47P-50 CH
C160	87-010-213-089	C-CAP,S 0.015-25 B		C704	87-010-178-089		C-CAP,S 1000P-50 B
C161	87-018-134-089	CAP,TC-U 0.01-16 Y		C705	87-010-178-089		C-CAP,S 1000P-50 B
C162	87-010-263-089	CAP,E 100-10 SME 5X11		C712	87-010-982-049		CAP,E 33-25 GAS
C163	87-010-197-089	C-CAP,S 0.01-25 B					
C164	87-010-193-089	C-CAP,S 0.033-25 F		C801	87-010-197-089		C-CAP,S 0.01-25 B<G>
C165	87-010-197-089	C-CAP,S 0.01-25 B		C802	87-010-260-089		CAP,E 47-25 SME<G>
C166	87-010-193-089	C-CAP,S 0.033-25 F		C803	87-010-194-089		C-CAP,S 0.047-25 F<G>
C167	87-010-197-089	C-CAP,S 0.01-25 B		C804	87-010-260-089		CAP,E 47-25 SME<G>
C169	87-010-150-089	C-CAP,S 6P-50 CH		C805	87-018-134-089		CAP,TC-U 0.01-16 Y<G>
				C805	87-010-260-089		CAP,E 47-25 SME<G>
				C807	87-010-405-089		CAP,E 10-50 SME<G>
				C808	87-010-197-089		C-CAP,S 0.01-25 B<G>
				C809	87-010-405-049		CAP,E 10-50 SME<G>
				C810	87-010-313-089		C-CAP,S 18P-50 CH<G>
				C811	87-010-314-089		C-CAP,S 22P-50 CH<G>
				C812	87-010-313-089		C-CAP,S 18P-50 CH<G>
				C813	87-010-315-089		C-CAP,S 27P-50 CH<G>

REF. NO.	PART NO.	カンリ NO.	DESCRIPTION	REF. NO.	PART NO.	カンリ NO.	DESCRIPTION
C814	87-010-197-089		C-CAP,S 0.01-25 B<G>	SW701	87-036-109-019		SW,PUSH SPPB 61
C815	87-010-260-049		CAP,E 47-25 SME<G>	SW702	87-036-109-019		SW,PUSH SPPB 61
C816	87-010-404-089		CAP,E 4.7-50 SME<G>	X101	87-030-402-089		VIB,XTAL 16.9344 MHZ
C817	87-010-221-089		CAP,E 470-10<G>	X801	80-JUC-602-089		VIB,XTAL 17.73MHZ<G>
C818	87-010-196-089		C-CAP,S 0.1-25 F<G>	X802	80-JUC-601-089		VIB,XTAL 14.31MHZ<G>
C819	87-010-321-089		C-CAP,S 82P-50 CH<G>				
C820	87-010-178-089		C-CAP,S 1000P-50 B<G>	LED C.B			
C821	87-010-196-089		C-CAP,S 0.1-25 F<G>	LED701	87-070-200-089		LED,SLP636C-81-S-T1
C822	87-010-197-089		C-CAP,S 0.01-25 B<G>	LED702	87-017-350-080		LED,SEL1550CM
C901	87-010-260-089		CAP,E 47-25 SME<D>	LED703	87-017-350-080		LED,SEL1550CM
C902	87-010-196-089		C-CAP,S 0.1-25 F<D>	LED704	87-070-200-089		LED,SLP636C-81-S-T1
CON2	84-ZG1-616-019		CONN ASSY, 6P H				
EMI801	87-008-474-089		F-BEAD,EMI BL02RN1<G>	T-T C.B			
EMI802	87-008-474-089		F-BEAD,EMI BL02RN1<G>	C401	87-018-214-089		CAP TC U 0.1-50 F
FC1	85-NFT-611-119		FF-CABLE,16P-1.0	M401	87-045-364-019		MOTOR, (BCH3B14)
FC4	84-ZG1-614-219		CABLE,FFC 5P-1.25	PS401	87-026-573-019		P-SNSR, GP1S53V
J801	87-009-502-010		JACK,PIN 1PY EARTH<G>				
LED901	87-A40-123-019		LED,SLZ-8128A-01-B<D>				
M601	87-045-305-019		MOTOR, RF-500TB				
R177	87-022-365-089		C-RES,S 100K-1/10W F	MOTOR C.B			
R178	87-022-363-089		C-RES,S 68K-1/10W F	M2	9X-262-513-210		SLED MOTOR ASSY
R179	87-022-363-089		C-RES,S 68K-1/10W F	PIN3	91-564-722-110		CONNECTOR 6P
R180	87-022-363-089		C-RES,S 68K-1/10W F	SW1	91-572-085-110		LEAF SW
R181	87-022-363-089		C-RES,S 68K-1/10W F				
R182	87-022-365-089		C-RES,S 100K-1/10W F				
R401	87-022-186-089		C-RES,82-1/4W J				
R403	87-022-186-089		C-RES,82-1/4W J				
SFR151	87-024-175-089		SFR,47K DIA6 V				
SFR152	87-024-176-089		SFR,100K DIA6 V				
SFR153	87-024-176-089		SFR,100K DIA6 V				

○ チップ抵抗部品コード / CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding



チップ抵抗
Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法 / Dimensions (mm)				抵抗コード : A Resistor Code: A
				外形 / Form	L	W	t	
1/16W	1608	±5%	CJ		1.6	0.8	0.45	108
1/10W	2125	±5%	CJ		2	1.25	0.45	118
1/8W	3216	±5%	CJ		3.2	1.6	0.55	128

Refer to the following pages for the 4ZG-1 and the common sections.

■ IC DESCRIPTION

CXA1782BQ See page 64

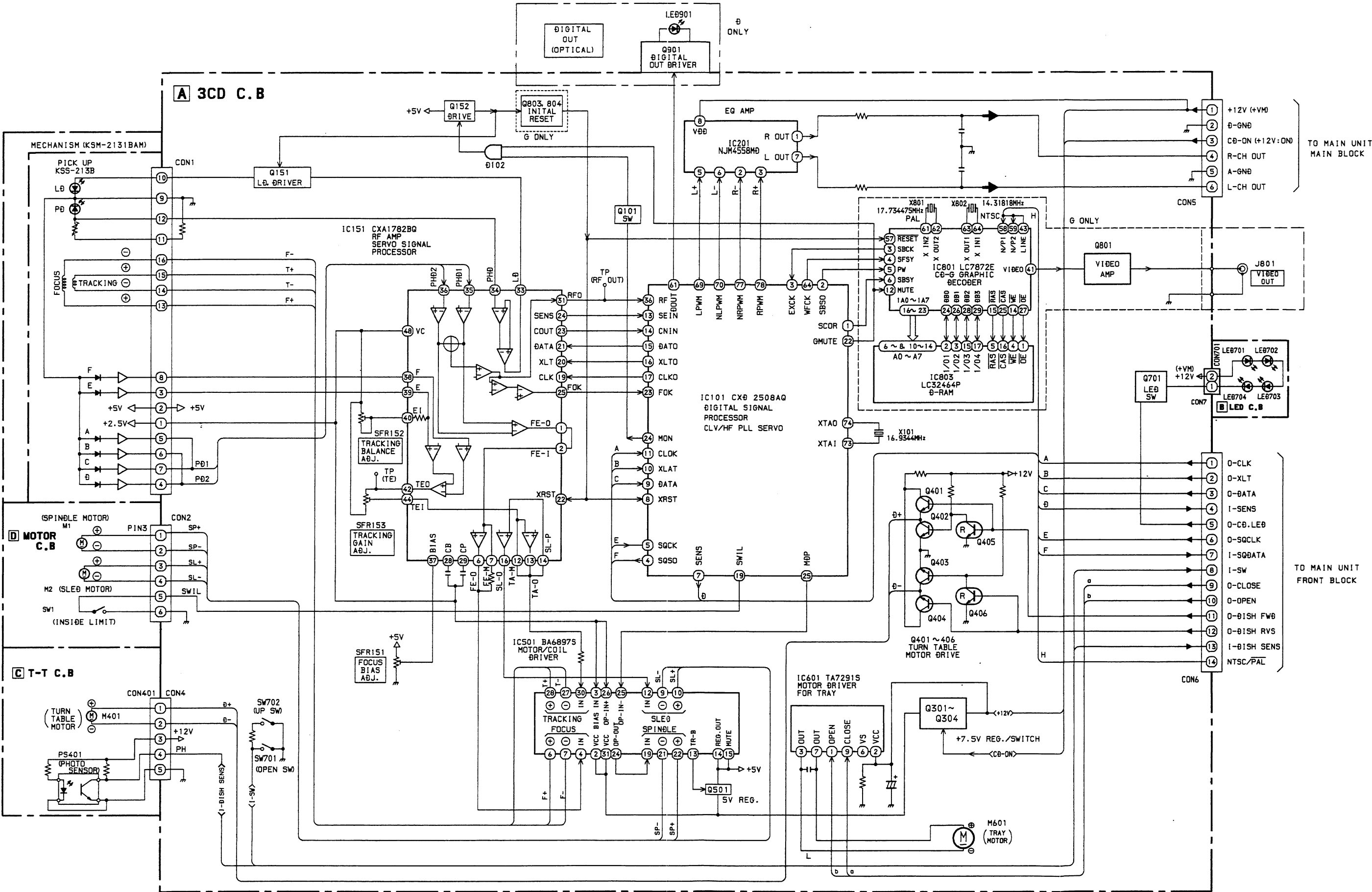
LC7872E See page 62

■ MECHANICAL EXPLODED VIEW 1 / 1

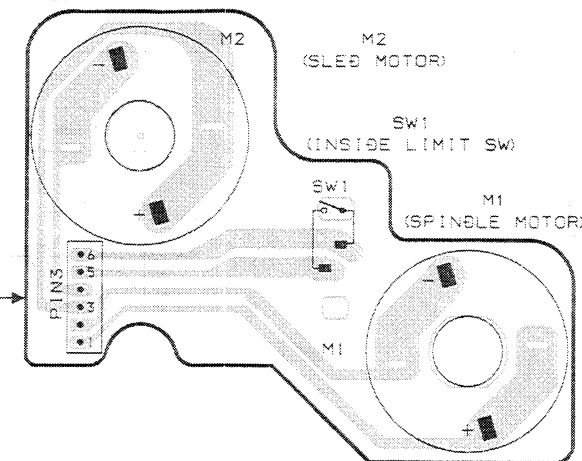
See page 95

■ MECHANICAL PARTS LIST 1 / 1

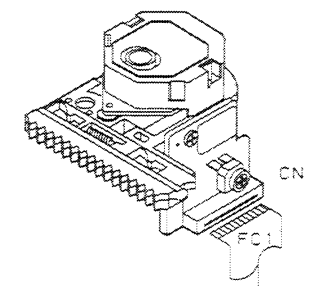
See page 96



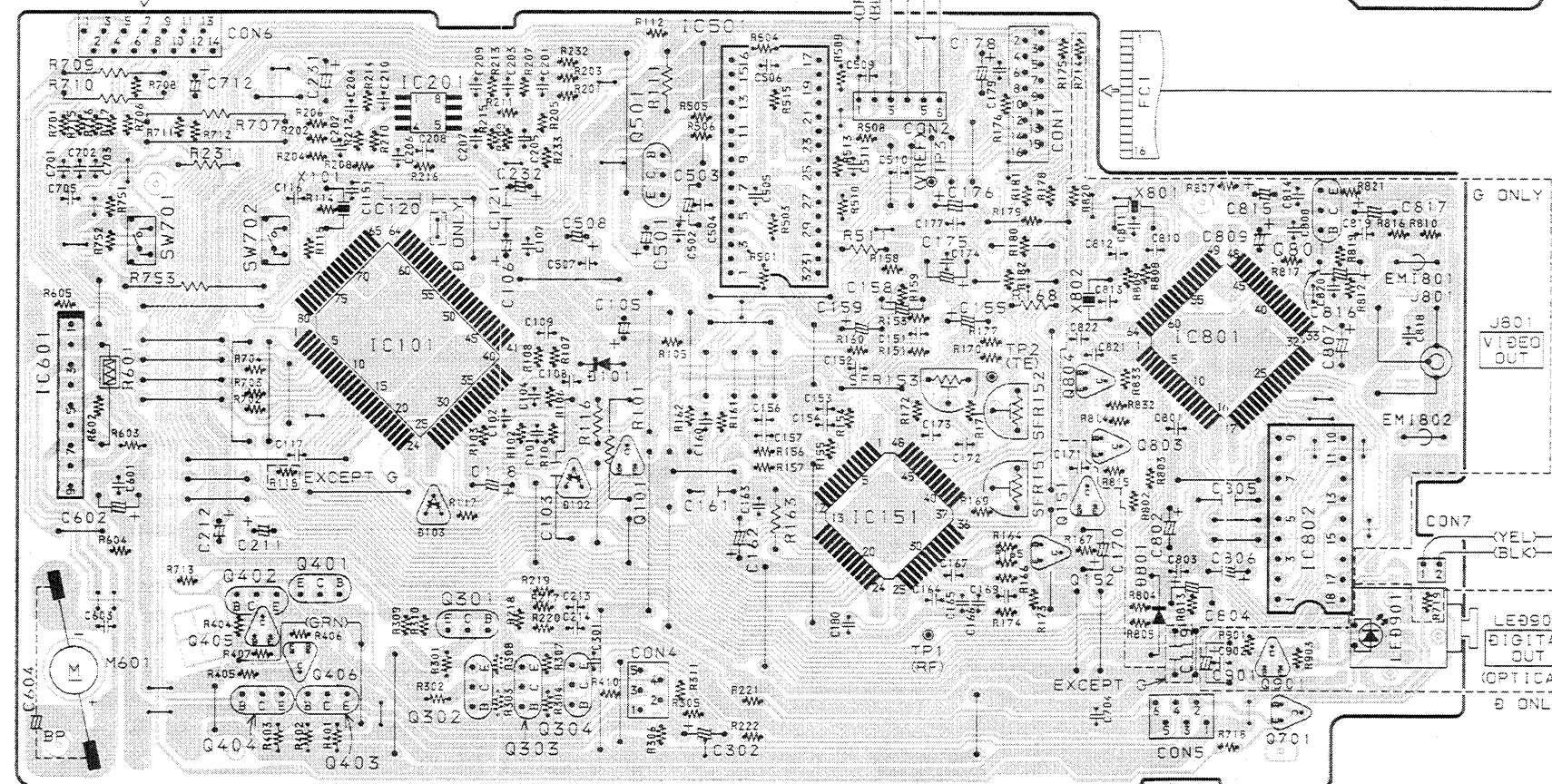
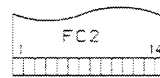
MOTOR C.B



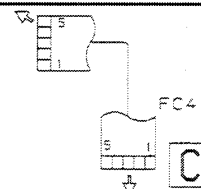
PICK UP ASSY



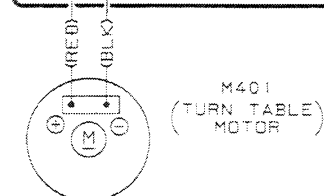
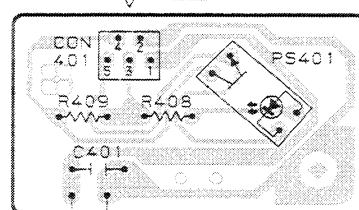
FROM MAIN UNIT



M601
(TRAY
LOADING
MOTOR)



T-T C.B

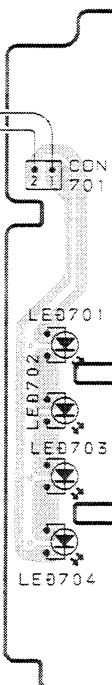


FROM MAIN UNIT

3C0 C.B

LED701-704
(FLASH
WINDOW
LIGHTING)

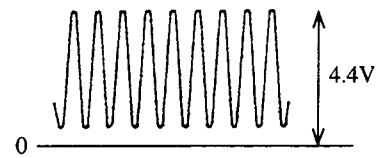
LED C.B



WAVE FORM

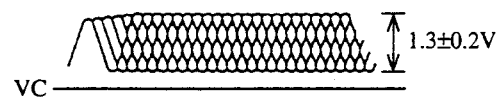
- ① SYSTEM CLOCK
IC101 Pin ⑦ (XTAO)
f=16.9344MHz

VOLT/DIV: 2V
TIME/DIV: 0.1μs



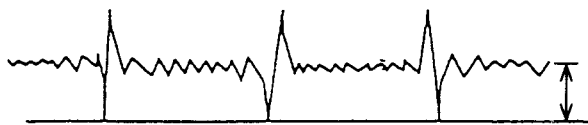
- ② RF
TP1 (RF)

VOLT/DIV: 500mV
TIME/DIV: 0.5μs



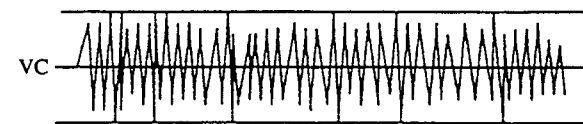
- ③ Focus
IC151 Pin ⑥ (FE-O)

VOLT/DIV: 200mV
TIME/DIV: 2ms

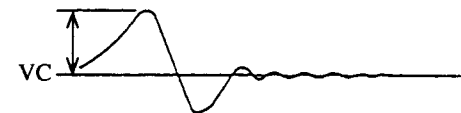


- ④ Tracking
TP2 (TE)

TIME/DIV: 1ms

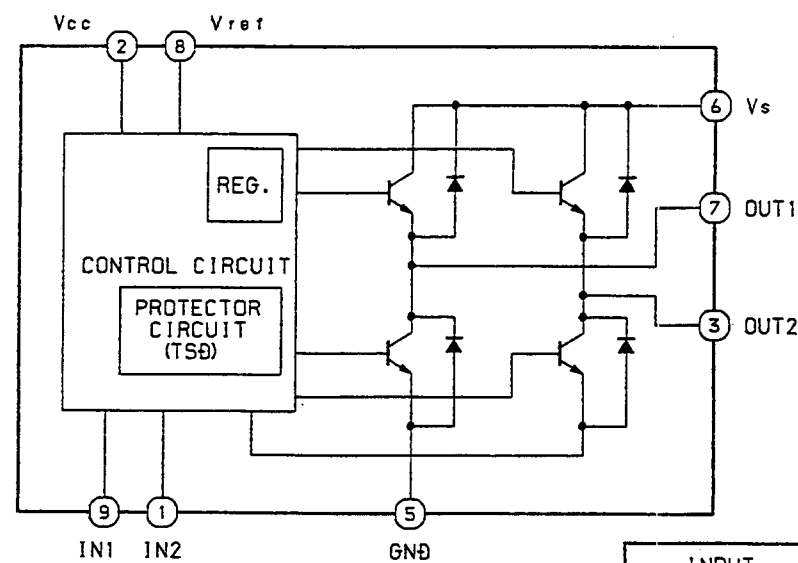


- ⑤ Focus Search
IC151 Pin ⑥ (FE-O)



IC BLOCK DIAGRAM

IC, TA7291



INPUT		OUTPUT		MODE
IN1	IN2	OUT1	OUT2	
0	0	∞	∞	STOP
1	0	H	L	CW
0	1	L	H	CCW
1	1	L	L	BRAKE

∞ : HI IMPEDANCE
NOTE : INPUT "H" ACTIVE

IC DESCRIPTION

IC, CXD2508AQ

Pin No.	Pin name	I/O	Description
1	SCOR	O	1H when the subcode sync S0 or S1 is detected.
2	SBSO	O	SUBP~W serial output.
3	EXCK	I	Clock input for SBSO read out.
4	SQSO	O	SUBQ 80-bit serial output.
5	SQCK	I	Clock input for SQSO read out.
6	MUTE	I	H to mute. L to cancel.
7	SENS	O	SENS signal output to CPU.
8	XRST	I	System reset. L to reset.
9	DATA	I	Serial data input from CPU.
10	XLAT	I	Latch input from CPU. Latching serial data at fall down.
11	CLOK	I	Clock input from CPU to transfer serial data.
12	VSS	—	GND.
13	SEIN	I	SENS input from SSP.
14	CNIN	I	Numbers of track jump are counted and input.
15	DATO	O	Serial data output to SSP.
16	XLTO	O	Serial data latched output to SSP. Latched at fall down edge.
17	CLKO	O	Clock input from SSP to transfer serial data.
18, 20	SPOA, C	I	Microprocessor expansion interface.
19	XTSL	I	X'tal selection input terminal. "L" at 16.9344MHz X'tal. "H" at 33.86888MHz.
22	XLON	O	Microprocessor expansion interface.
23	FOK	I	Focus OK input pin. Used for SENS output and servo auto sequencer.
24	MON	O	Spindle motor ON/OFF control output.
25	MDP	O	Spindle motor servo control output.
26	MDS	O	Spindle motor servo control output.
27	LOCK	O	GFS is sampled by 460Hz. H output when GFS is H. L output when GFS is L for 8 consecutive times.
28	TEST1	I	TEST. (Connected to GND)
29	FILO	O	Filter output to master PLL. (slave=digital PLL)
30	FILI	I	Filter input to master PLL.
31	PCO	O	Charge-pump output to master PLL.
32	VDD	—	Power supply input. (+5V)
33	AVSS1	—	GND.
34	CLTV	I	VCO control voltage input to master PLL.
35	AVDD1	—	Power supply input. (+5V)
36	RF	I	EFM signal input.
37	BIAS	I	Constant current input to asymmetry correction circuit.
38	ASYI	I	Compare voltage input to asymmetry correction circuit.
39	ASYO	O	EFM full swing output. (L=VSS, H=VDD)
40	ASYE	I	L: asymmetry correction OFF. H: asymmetry correction ON
41	WDCK	O	D/A interface, word clock (2Fs) for 48-bit slot.
42	LRCK	O	D/A interface, LR clock (Fs) for 48-bit slot.

Pin No.	Pin name	I/O	Description
43	LRCKI	I	LR clock input to DAC. (48-bit slot)
44	PCMD	O	D/A interface, serial data. (2's complement, MSB first)
45	PCMDI	I	Audio data input to DAC. (48-bit slot)
46	BCK	O	D/A interface, bit clock.
47	BCKI	I	Bit clock input to DAC. (48-bit slot)
48	GTOP	O	GTOP output.
49	XUGF	O	XUFG output.
50	XPCK	O	XPLCK output.
51	GFS	O	GFS output.
52	RFCK	O	RFCK output.
53	VSS	—	GND.
54	C2PO	O	C2PO output.
55	XROF	O	XRAOF output.
56	MNT3	O	MNT3 output.
57	MNT1	O	MNT1 output.
58	MNT0	O	MNT0 output.
59	FSTT	O	Pins-73 and -74 divided-by 2/3 output.
60	C4M	O	4.2336MHz output.
61	DOUT	O	Digital Out connector output signal.
62	EMPH	O	H when the playback disc has emphasis. L when it does not.
63	EMPHI	I	DAC emphasis ON/OFF. H when ON. L when OFF
64	WFCCK	O	WFCCK (WRITE FRAME CLOCK) output.
65	ZEROL	O	No sound data detection output. H (L-ch) when no sound data is detected.
66	ZEROR	O	No sound data detection output. H (R-ch) when no sound data is detected.
67	DTSI	I	TEST for DAC. (Normally "L")
68	VDD	—	Power supply input. (+5V)
69	NLPWM	O	L-ch PWM output. (reversed polarity)
70	LPWM	O	L-ch PWM output. (normal polarity)
71	AVDD2	—	Power supply input to L-ch PWM driver. (Connected to +5V)
72	AVDD3	—	Power supply input to X'tal. (Connected to +5V)
73	XTAI	I	X'tal input to 33.8688MHz oscillator circuit.
74	XTAO	O	33.8688MHz X'tal oscillator circuit output.
75	AVSS1	—	GND input to X'tal. (Connected GND)
76	AVSS2	—	GND input to PWM driver. (Connected to GND)
77	NRPWM	O	R-ch PWM output. (reversed phase)
78	RPWM	O	R-ch PWM output. (normal phase)
79	DTS2	I	TEST-2 for DAC. (Normally "L")
80	DTS3	I	TEST-3 for DAC. (Normally "L")

TEST MODE

1. How to Activate CD Test Mode

Insert the AC plug while pressing the function CD button.
All FL display tubes will light up, and the test mode will be activated.

2. How to Cancel CD Test Mode

Either one of the following operations will cancel the CD test mode.

- Press the function button.
- Press the power switch button. (except CD function button)
- Disconnect the AC plug

3. CD Test Mode Functions

When test mode is activated, the following mode functions from No.1 to No.5 can be used by pressing the operation keys.

Mode/No.	Operation	FL display	Operation	Contents
Start mode No.1	Activation	All lamps light	• Test mode is activated. • Laser diode turns always ON. (CD block power is ON.)	• FL display check (All displays light.) • APC circuit check • Laser current measurement (Laser current control. Across a resistor connected between emitter and GND.)
Search mode No.2	■ key		• Continual focus search (The pickup lens repeats the full-swing up-down motion.) * Avoid continual searches that last for more than 10 minutes. * NOTE 1	FOCUS SERVO • Check focus search waveform • Check focus error waveform (FOK/FZC are not monitored in the search mode)
Play mode No.3	◀▶ key		• Normal playback • Focus search is continued if TOC cannot be read. * NOTE 1	FOCUS SERVO/TRACKING SERVO CLV SERVO/SLED SERVO Check FOK/FZC
Traverse mode No.4	key		• During normal disc playback Press once; tracking servo OFF Press twice; tracking servo ON * NOTE 2	TRACKING SERVO ON/OFF Tracking balance (traverse) adjustment
Sled mode No.5	◀◀ key ▶▶ key	All lamps light	• Pickup moves to the outermost track • Pickup moves to the innermost track * NOTE 3 (During playback, machine operates normally.)	SLED SERVO Check SLED mechanism operation

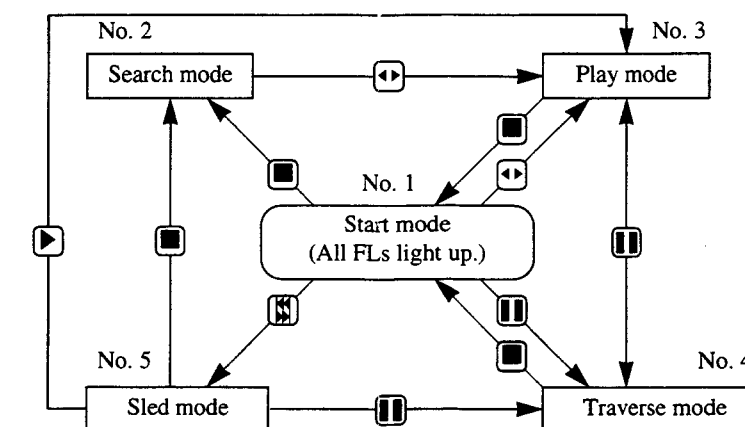
* NOTE 1: There are cases when the tracking servo cannot be locked owing to the protection circuit being operated when heat builds up in the driver IC if the focus search is operated continually for more than 10 minutes. In these cases the power supply should be switched off for 10 minutes until heat has been reduced and then re-started.

* NOTE 2: Do not press the ◀◀ or ▶▶ keys when the machine is in the || status is active. If they are pressed, playback will not be possible after the || status has been canceled. If the ◀◀ or ▶▶ keys are pressed in the || status, press the ■ key and return to the start mode (No.1).

* NOTE 3: When pressing the ◀◀ or ▶▶ keys, take care to avoid damage to the gears. Because the sled motor is activated when the ◀◀ or ▶▶ keys are pressed, even when the pick-up is at the outermost or innermost track.

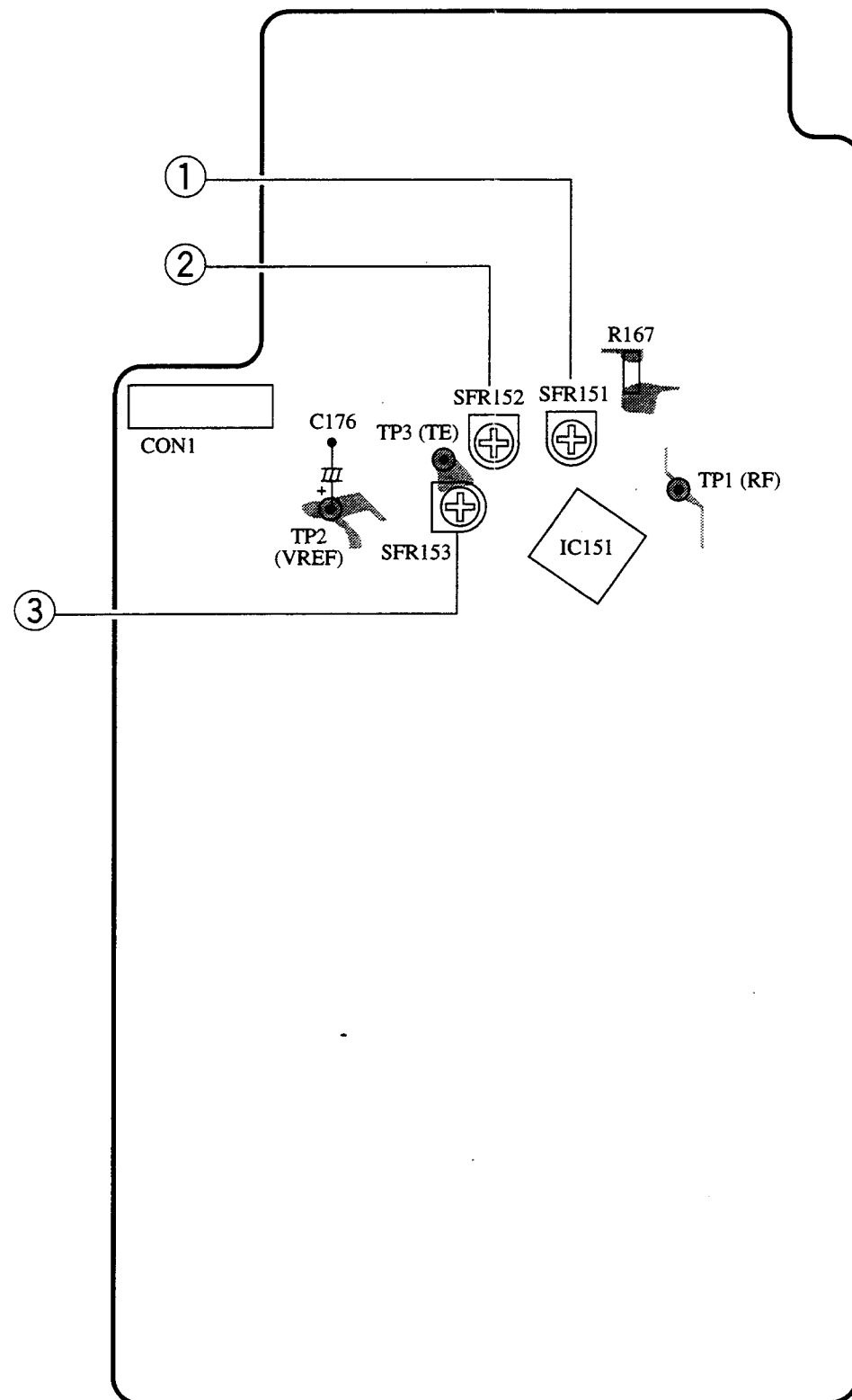
4. Operation Outline

The operation of each mode is carried out in the direction of the arrows from the start mode as indicated in the following illustration.



If the DISC DIRECT PLAY button is pressed, the machine performs the same operation as the PLAY button is pressed as shown. If the tray is opened by pressing OPEN/CLOSE button during Play mode or Traverse mode, the machine returns to the Start mode.

A 3CD C.B (PATTERN SIDE)

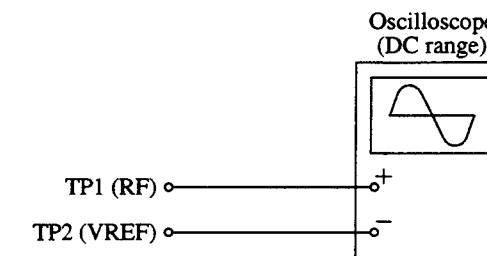


Note:

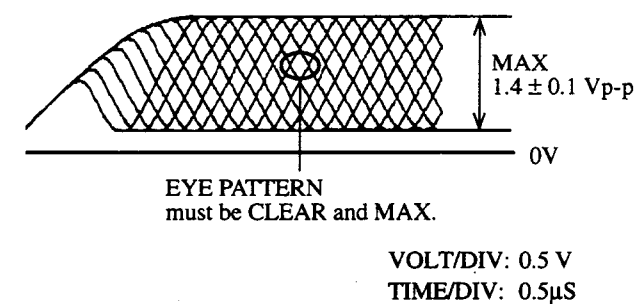
- Connect a probe (10: 1) of the oscilloscope or the frequency counter to a test point.
- During adjustment, connect (⊖) pin of an oscilloscope to TP2 (VREF).

1. Focus Bias Adjustment

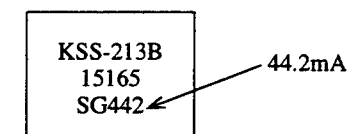
Make the focus bias adjustment when replacing and repairing the optical block.



- 1) Connect an oscilloscope to test points TP1 (RF) and TP2 (VREF).
- 2) Turn on the power switch.
- 3) Insert test disc TCD-782 (YEDS-18) and play back the second composition.
- 4) Adjust SFR151 so that RF signal of test point TP1 (RF) is MAX and CLEARREST.

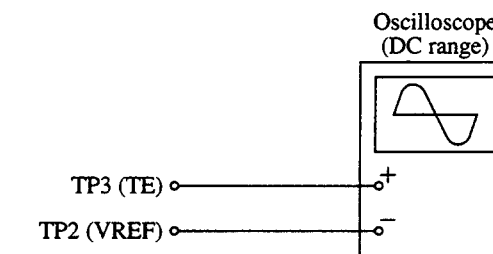


Note: The current of the laser signal can be checked with the voltages on both sides of R167 (10Ω). The difference for the specified value shown on the level must be within ±6.0mA.

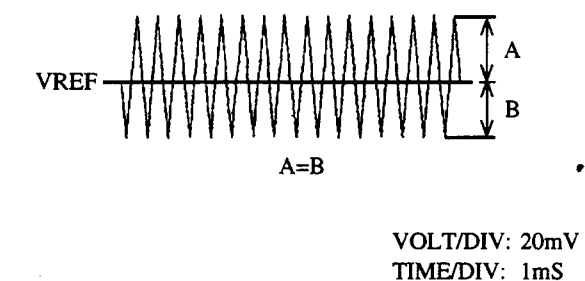


$$\text{Laser current } I_{op} = \frac{\text{Voltage across R167}}{10\Omega}$$

2. Tracking Balance Adjustment



- 1) Connect an oscilloscope to test points TP3 (TE) and TP2 (VREF).
- 2) Turn on the power switch.
- 3) Insert test disc TCD-782 (YEDS-18) and press the PLAY button.
- 4) Adjust SFR153 to reduce the tracking gain.
- 5) Adjust SFR152 so that the traverse waveform on an oscilloscope is vertically symmetrical as shown in the figure below.



3. Tracking Gain Adjustment

A servo analyzer is necessary in order to perform this adjustment exactly. However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment. Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when 2-axis device operates. However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise increases when the 2-axis device operates.
 - When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.
- When the gain adjustment is off, the symptoms below appear.

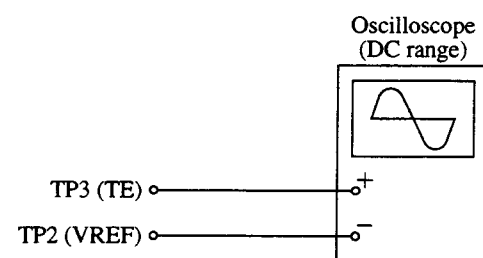
Symptoms	Gain (Focus)	Tracking
● The time until music starts becomes longer for STOP→▶PLAY or automatic selection (◀▶ buttons pressed.) (Normally takes about 2 seconds.)	low	low or high
● Music does not start and disc continues to rotate for STOP→▶PLAY or automatic selection (◀▶ buttons pressed.)	—	low
● Disc stops to rotate shortly after STOP→▶PLAY.	low or high	—
● Sound is interrupted during PLAY. Or time counter display stops.	—	low
● More noises during the 2-axis device operation.	high	high

The following is simple adjustment method.

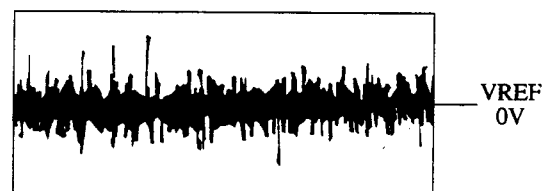
— Simple adjustment —

Note: Since the exact adjustment cannot be performed, remember the positions of the controls before the performing the adjustment. If the positions after the simple adjustment are only a little different, return the controls to the original position.

Procedure:



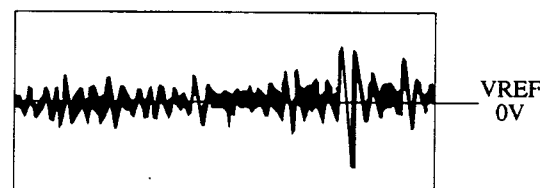
- 1) Keep the set horizontal. (If the set is not kept horizontally, this adjustment cannot be performed due to the gravity against the 2-axis device.)
- 2) Insert test disc TCD-782 (YEDS-18) and play back the second composition.
- 3) Connect an oscilloscope to TP3 (TE), TP2 (VREF) of the CD C.B.
- 4) Adjust SFR153 so that the waveform appears as shown in the figure below. (tracking gain adjustment)



VOLT/DIV: 50mV
TIME/DIV: 1mS

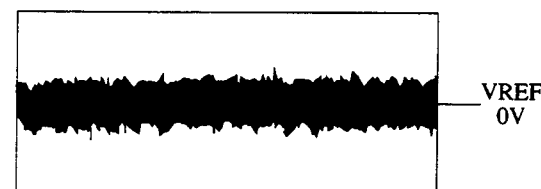
- Incorrect example

Low tracking gain
(The fundamental wave appears as compared with the waveform adjusted.)



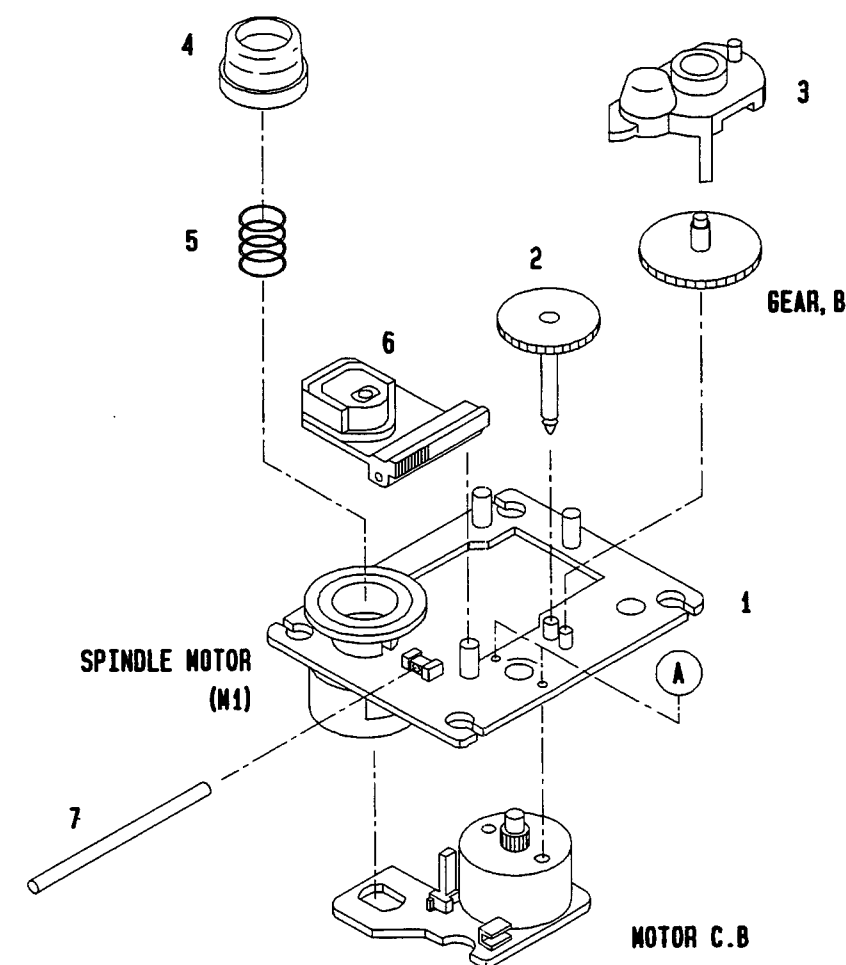
VOLT/DIV: 50mV
TIME/DIV: 1mS

High tracking gain
(The frequency of the fundamental wave is higher than that in low gain.)



VOLT/DIV: 50mV
TIME/DIV: 1mS

CD MECHANISM EXPLODED VIEW 1 / 1 (KSM-2131BAM <A, B>)



CD MECHANISM PARTS LIST 1 / 1 (KSM-2131BAM <A, B>)

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF. NO	PART NO.	カンリ NO.	DESCRIPTION	REF. NO	PART NO.	カンリ NO.	DESCRIPTION
1	-	-	MOTOR CHASSIS ASSY	6	87-070-445-010		OPTICAL PICK UP KSS-213B
2	92-625-188-020		GEAR (A)	7	94-917-565-010		SHAFT SLED
3	92-625-544-010		COVER	A	87-261-032-210		V+2-3
4	92-625-186-020		RING CENTER C				
5	92-625-191-010		SPRING COMPRESSION				

4ZG-1B

ELECTRICAL MAIN PARTS LIST

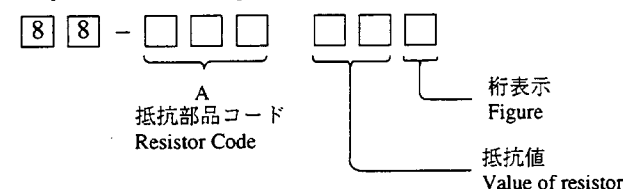
DESCRIPTION で判断できない物は“REFERENCE NAME LIST”を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	カンリ NO.	DESCRIPTION	REF. NO.	PART NO.	カンリ NO.	DESCRIPTION
IC				C162	87-010-248-089		CAP,E 220-10 SME
	87-070-336-019		IC,TC 9284 BF	C163	87-010-260-089		CAP,E 47-25 SME
	87-002-407-019		IC TA8191F	C164	87-010-403-089		CAP,E 3.3-50 SME
	87-017-888-089		IC,NJM4558MD	C165	87-010-213-089		C-CAP,S 0.015-25 B
	87-070-305-019		IC,BA6897S	C166	87-010-187-089		C-CAP,S 5600P-50 B
	87-001-982-019		IC,TA7291S				
	87-017-802-010		IC,LC7872E<G>	C167	87-012-365-089		C-CAP,S 0.027-25V BK
	87-017-803-010		IC,LC32464P-80<G>	C168	87-010-189-089		C-CAP,S 8200P-50 B
				C169	87-015-883-089		C-CAP 0.022-25BK
				C170	87-010-320-089		C-CAP,S 68P-50 CH
				C171	87-010-382-089		CAP,E 22-25 SME
TRANSISTOR				C172	87-010-197-089		C-CAP,S 0.01-25 B
	87-026-297-089		C-TR,DTA144TK	C173	87-010-263-089		CAP,E 100-10 SME 5X11
	89-110-373-089		C-TR,2SA1037 S	C174	87-010-178-089		C-CAP,S 1000P-50 B
	89-420-052-089		TR 2SD2005Q (T105)	C175	87-010-805-089		C-CAP,S 1-16F
	89-421-722-389		TR,2SD2172 V/W	C201	87-010-318-089		C-CAP,S 47P-50 CH
	89-320-011-089		TR,2SC2001K				
	87-026-223-089		C-TR,DTC143TK	C202	87-010-318-089		C-CAP,S 47P-50 CH
	89-113-187-089		TR,2SA1318TU	C203	87-010-321-089		C-CAP,S 82P-50 CH
	87-026-608-089		C-TR,DTC 123 JK	C204	87-010-321-089		C-CAP,S 82P-50 CH
	89-406-555-089		TR,2SD655E<G>	C205	87-010-321-089		C-CAP,S 82P-50 CH
	87-026-239-089		C-TR,DTC114TK<G>	C206	87-010-321-089		C-CAP,S 82P-50 CH
	89-327-125-089		C-TR,2SC2712GR<D>				
DIODE				C207	87-012-153-089		C-CAP,S 120P-50 CH
	87-020-465-089		DIODE,1SS133	C208	87-012-153-089		C-CAP,S 120P-50 CH
				C209	87-012-153-089		C-CAP,S 120P-50 CH
				C210	87-012-153-089		C-CAP,S 120P-50 CH
				C211	87-010-405-049		CAP,E 10-50 SME
3CD C.B				C212	87-010-405-049		CAP,E 10-50 SME
	87-015-819-089		CHIP CAP 0.01	C213	87-010-186-089		C-CAP,S 4700P-50 B
	87-015-819-089		CHIP CAP 0.01	C214	87-010-186-089		C-CAP,S 4700P-50 B
	87-015-676-089		CAP,E 47-6.3 7L	C231	87-010-112-089		CAP,E 100-16
	87-015-676-089		CAP,E 47-6.3 7L	C232	87-010-060-049		CAP,E 100-16 7L
	87-010-197-089		C-CAP,S 0.01-25 B				
	87-010-404-089		CAP,E 4.7-50 SME	C301	87-010-196-089		C-CAP,S 0.1-25 F
	87-010-197-089		C-CAP,S 0.01-25 B	C302	87-010-260-089		CAP,E 47-25 SME
	87-010-248-049		CAP,E 220-10 SME	C501	87-010-221-049		CAP,E 470-10 SME
	87-010-263-049		CAP,E 100-10	C502	87-010-197-089		C-CAP,S 0.01-25 B
	87-010-309-089		C-CAP,1000P-50 CH	C503	87-010-263-089		CAP,E 100-10 SME 5X11
	87-010-197-089		C-CAP,S 0.01-25 B				
	87-010-184-089		C-CAP,S 3300P-50 B	C504	87-010-196-089		C-CAP,S 0.1-25 F
	87-010-060-049		CAP,E 100-16 7L	C505	87-010-196-089		C-CAP,S 0.1-25 F
	87-010-197-089		C-CAP,S 0.01-25 B	C506	87-010-196-089		C-CAP,S 0.1-25 F
	87-010-197-089		C-CAP,S 0.01-25 B	C507	87-010-196-089		C-CAP,S 0.1-25 F
	87-010-197-089		C-CAP,S 0.01-25 B	C508	87-010-221-049		CAP,E 470-10 SME
	87-010-322-089		C-CAP,S 100P-50 CH				
	87-010-314-089		C-CAP,S 22P-50 CH	C509	87-010-196-089		C-CAP,S 0.1-25 F
	87-010-314-089		C-CAP,S 22P-50 CH	C510	87-010-196-089		C-CAP,S 0.1-25 F
	87-010-197-089		C-CAP,S 0.01-25 B	C601	87-010-197-089		C-CAP,S 0.01-25 B
	87-010-184-089		C-CAP,S 3300P-50 B	C602	87-010-381-089		CAP,E 330-16 SME
	87-010-184-089		C-CAP,S 3300P-50 B	C603	87-010-196-089		C-CAP,S 0.1-25 F
	87-010-805-089		C-CAP,S 1-16F				
	87-018-134-089		CAP,TC-U 0.01-16 Y<EXCEPT G>	C701	87-010-322-089		C-CAP,S 100P-50 CH
	87-010-196-089		C-CAP,S 0.1-25 F	C702	87-010-322-089		C-CAP,S 100P-50 CH
	87-010-196-089		C-CAP,S 0.1-25 F	C703	87-010-318-089		C-CAP,S 47P-50 CH
	87-010-154-089		C-CAP,S 10P-50 CH	C704	87-010-178-089		C-CAP,S 1000P-50 B
	87-010-154-089		C-CAP,S 10P-50 CH	C705	87-010-178-089		C-CAP,S 1000P-50 B
	87-010-322-089		C-CAP,S 100P-50 CH				
	87-010-263-089		CAP,E 100-10 SME 5X11	C712	87-010-982-049		CAP,E 33-25 GAS
	87-010-197-089		C-CAP,S 0.01-25 B	C801	87-010-197-089		C-CAP,S 0.01-25 B<G>
	87-012-141-089		C-CAP,S 0.22-16 F	C802	87-010-260-089		CAP,E 47-25 SME<G>
	87-010-545-049		CAP E 0.22-50 SME	C803	87-010-194-089		C-CAP,S 0.047-25 F<G>
	87-015-683-080		CAP,E 33-16 7L	C804	87-010-260-089		CAP,E 47-25 SME<G>
	87-010-193-089		C-CAP,S 0.033-25 F				
	87-010-197-089		C-CAP,S 0.01-25 B	C805	87-018-134-089		CAP,TC-U 0.01-16 Y<G>
				C806	87-010-260-089		CAP,E 47-25 SME<G>
				C807	87-010-405-089		CAP,E 10-50 SME<G>
				C808	87-010-197-089		C-CAP,S 0.01-25 B<G>
				C809	87-010-405-049		CAP,E 10-50 SME<G>
				C810	87-010-313-089		C-CAP,S 18P-50 CH<G>
				C811	87-010-314-089		C-CAP,S 22P-50 CH<G>
				C812	87-010-313-089		C-CAP,S 18P-50 CH<G>

REF. NO.	PART NO.	カンリ NO.	DESCRIPTION	REF. NO.	PART NO.	カンリ NO.	DESCRIPTION
C813	87-010-315-089		C-CAP,S 27P-50 CH<G>	SFR152	87-024-171-089		SFR 4.7K DIA6 V
C814	87-010-197-089		C-CAP,S 0.01-25 B<G>	SW701	87-036-109-019		SW,PUSH SPPB 61
C815	87-010-260-049		CAP,E 47-25 SME<G>	SW702	87-036-109-019		SW,PUSH SPPB 61
C816	87-010-404-089		CAP,E 4.7-50 SME<G>	X101	87-030-402-089		VIB,XTAL 16.9344 MHZ
C817	87-010-221-089		CAP,E 470-10<G>	X801	80-JUC-602-089		VIB,XTAL 17.73MHZ<G>
C818	87-010-196-089		C-CAP,S 0.1-25 F<G>	X802	80-JUC-601-089		VIB,XTAL 14.31MHZ<G>
C819	87-010-321-089		C-CAP,S 82P-50 CH<G>				
C820	87-010-178-089		C-CAP,S 1000P-50 B<G>				
C821	87-010-196-089		C-CAP,S 0.1-25 F<G>				
C822	87-010-403-089		CAP,E 3.3-50 SME<G>				
C824	87-018-134-089		CAP,TC-U 0.01-16 Y				
C901	87-010-260-089		CAP,E 47-25 SME<D>				
C902	87-010-196-089		C-CAP,S 0.1-25 F<D>				
CON2	84-ZG1-616-019		CONN ASSY,6P H				
EMI801	87-008-474-089		F-BEAD,EMI BL02RN1<G>				
EMI802	87-008-474-089		F-BEAD,EMI BL02RN1<G>				
FC1	85-NFT-611-119		FF-CABLE,16P-1.0				
FC4	84-ZG1-614-219		CABLE,FFC 5P-1.25				
J801	87-009-502-010		JACK,PIN 1PY EARTH<G>				
LED901	87-A40-123-019		LED,SLZ-8128A-01-B<D>				
M601	87-045-305-019		MOTOR, RF-500TB				
R184	87-022-361-089		C-RES,S 47K-1/10W F				
R185	87-022-361-089		C-RES,S 47K-1/10W F				
R186	87-022-361-089		C-RES,S 47K-1/10W F				
R187	87-022-361-089		C-RES,S 47K-1/10W F				
R188	87-022-361-089		C-RES,S 47K-1/10W F				
R189	87-022-361-089		C-RES,S 47K-1/10W F				
R401	87-022-186-089		C-RES,82-1/4W J				
R403	87-022-186-089		C-RES,82-1/4W J				
SFR151	87-024-176-089		SFR,100K DIA6 V				

○ チップ抵抗部品コード／CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding



チップ抵抗
Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法／Dimensions (mm)			抵抗コード : A Resistor Code: A
				外形／Form	L	W	
1/16W	1608	±5%	CJ		1.6	0.8	0.45
1/10W	2125	±5%	CJ		2	1.25	0.45
1/8W	3216	±5%	CJ		3.2	1.6	0.55

Refer to the following pages for the 4ZG-1 and the common sections.

■ IC DESCRIPTION

LC7872E See page 62

■ MECHANICAL EXPLODED VIEW 1 / 1

See page 95

■ MECHANICAL PARTS LIST 1 / 1

See page 96

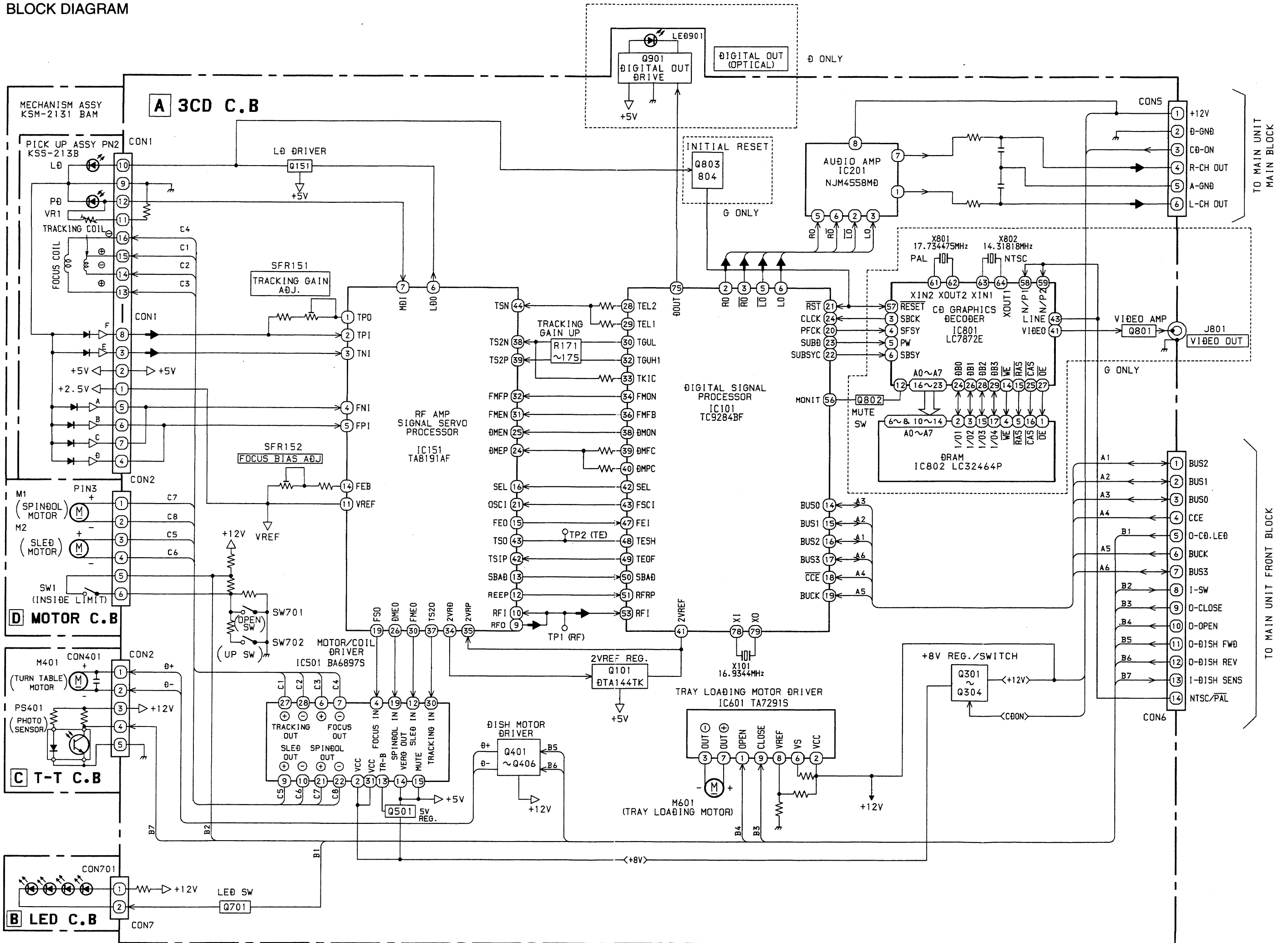
■ CD MECHANISM EXPLODED VIEW 1 / 1

See page 114

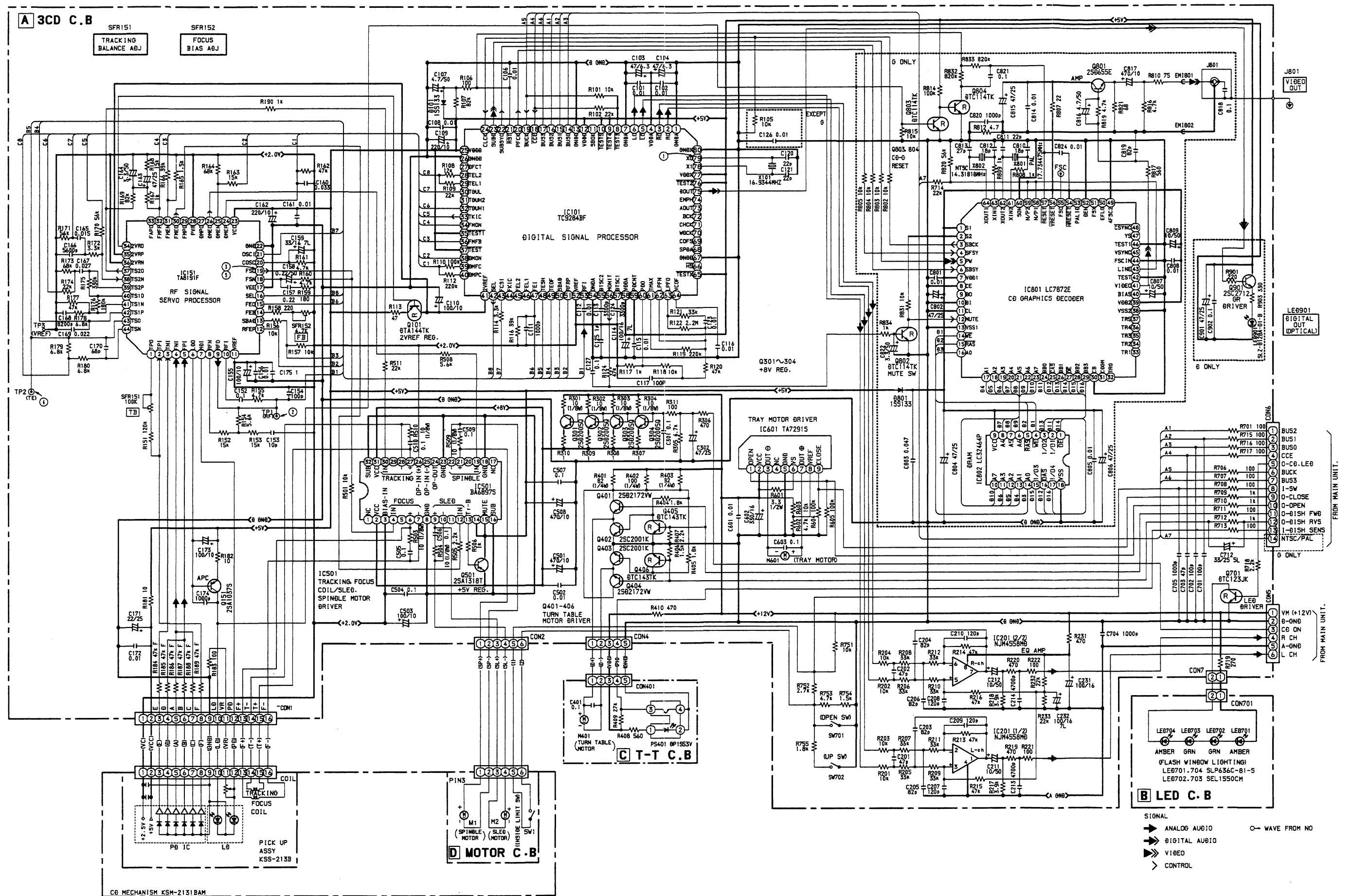
■ CD MECHANISM PARTS LIST 1 / 1

See page 114

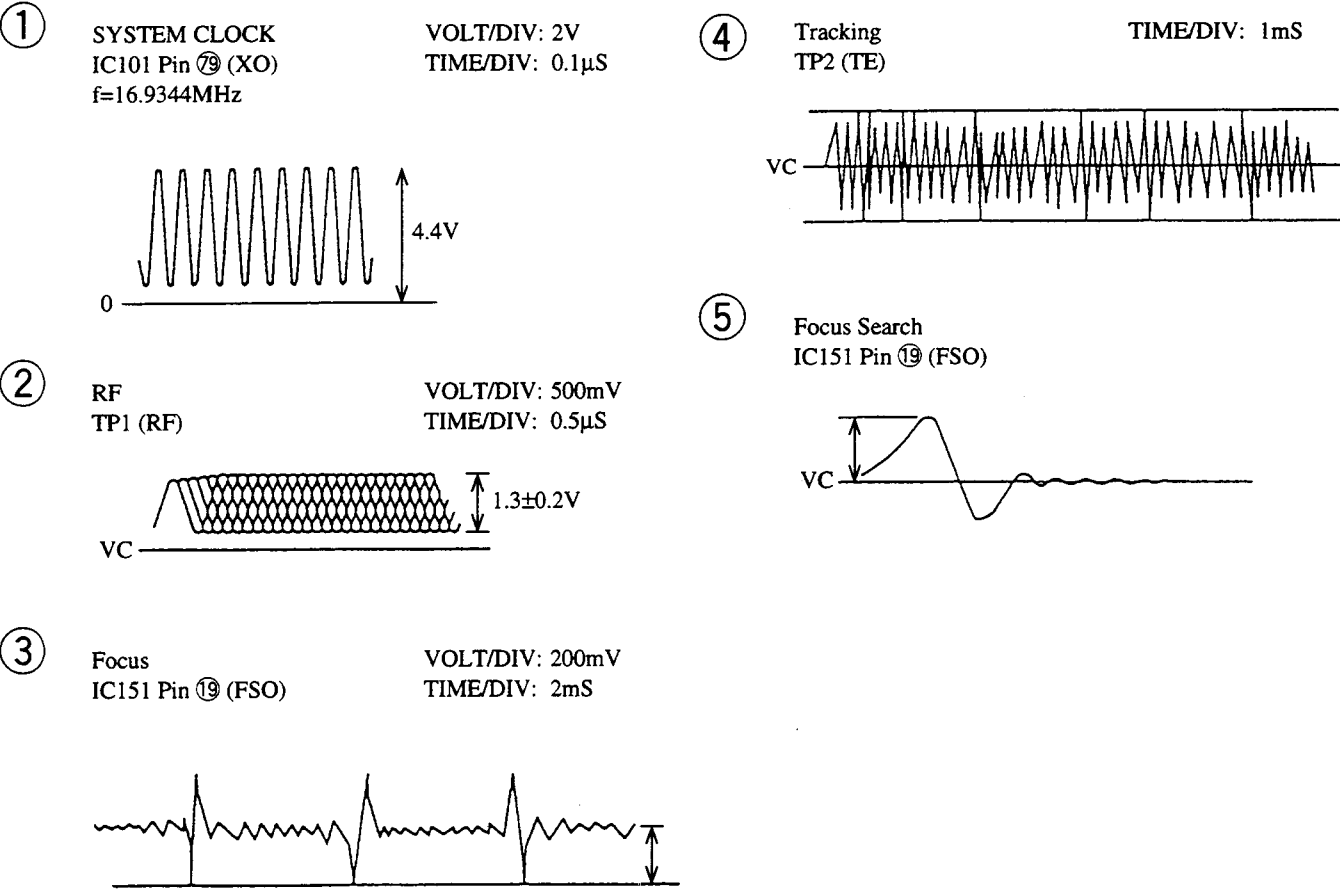
BLOCK DIAGRAM





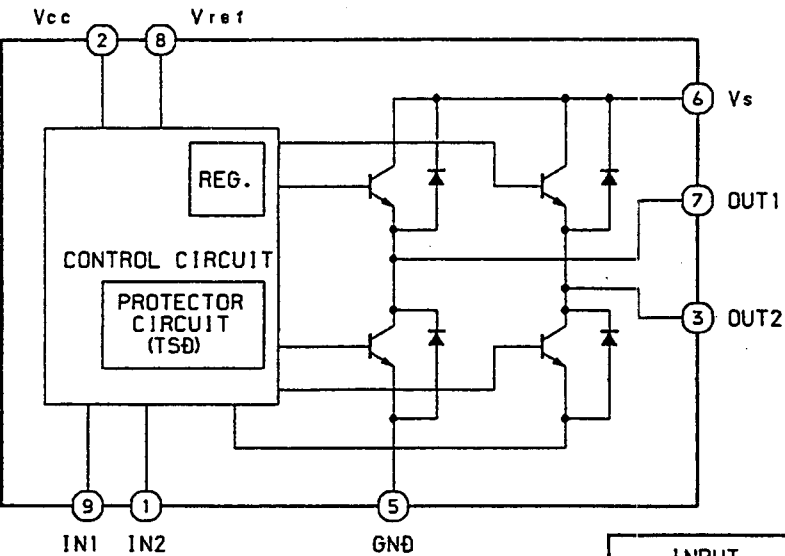


WAVE FORM



IC BLOCK DIAGRAM

IC, TA7291



INPUT		OUTPUT		MODE
IN1	IN2	OUT1	OUT2	
0	0	∞	∞	STOP
1	0	H	L	CW
0	1	L	H	CCW
1	1	L	L	BRAKE

∞ : HI IMPEDANCE
NOTE : INPUT "H" ACTIVE

IC DESCRIPTION

IC, TC9284BF

Pin No.	Pin name	I/O	Description
1	GNDA	—	D/A converter R-channel analog GND.
2	RO	O	R-channel data positive output.
3	RO	O	R-channel data inverted output.
4	VDA	—	D/A converter power supply.
5	LO	O	L-channel data inverted output.
6	LO	O	L-channel data positive output.
7	GNDA	—	D/A converter L-channel analog GND.
8~10	TEST3~TEST5	I	TEST pin. Normally "H" or open.
11	SBOK	O	Sub code Q data CRCC judgment result output. Judgment result OK: H
12	VDDD	—	Digital power supply. (+5 V)
13	GNDD	—	Digital GND.
14~17	BUS0~BUS3	I/O	μprocessor interface, data input/output.
18	CCE	I	μprocessor interface, chip enable signal input. When "L" : BUS 3~0 are active
19	BUCK	I	μprocessor interface, clock input.
20	PFCK	O	PB frame sync output.
21	RST	I	Reset signal input. "L" at reset.
22	SUBSYC	O	Sub code block sync output. When sub code is detected, "H" at S1 position.
23	SUBD	O	Sub code P~W output.
24	CLCK	I	Sub code P~W data read clock input.
25	VDDD	—	Digital power supply. (+5 V)
26	GNDD	—	Digital GND.
27	DFCT	O	Defect detection signal output. When defect is detected: "VREF", normally "HiZ".
28	TEL2	O	Tracking gain adjustment analog switch output. "VREF", or "HiZ".
29	TEL1	O	Tracking gain adjustment analog switch output. "VREF", or "HiZ".
30	TGUL	O	Analog switch output for tracking servo gain up. Polarity in gain-up mode and normal mode can be selected by command.
31	TGUH2	O	Analog switch output for tracking servo gain up. "HiZ" for gain-up, normally "VREF".
32	TUGH1	O	TGUH1 during normal playback. TGUL2: not used
33	TKIC	O	Tracking actuator kick signal output. NKICx and CKICx are used for kick during tracking gain adjustment. "VREF" for outermost track. "O" for moving toward inner track. Normally "HiZ".
34	FMON	O	Analog switch output to turn ON/OFF the feed servo. "HiZ" to turn ON servo. "VREF" to turn OFF servo.
35	TEST1	I	TEST pin. Normally "H" or open.
36	FMFB	O	Feed motor FWD/BWD direction control signal output. "2VREF" for outmost track. "O" for moving toward inner track. Normally "HiZ".
37	TEST	I	TEST pin. Normally "H" or open.
38	DMON	O	Analog switch output to select gain of the disc motor drive circuit. "HiZ" for CLV servo OFF, "HiZ" or "VREF" can be selected by command.

Pin No.	Pin name	I/O	Description																
39	DMPC	O	Disc motor CLV servo AFC signal output.																
			<table><tr><th>Operation</th><th>Command</th><th>DMFC output</th></tr><tr><td>Motor acceleration</td><td>DMFK</td><td>“2VREF”</td></tr><tr><td>CLV servo ON</td><td>DMSV</td><td>AFC signal (PWM)</td></tr><tr><td>Motor brake</td><td>DMBK</td><td>“L ”</td></tr><tr><td>CLV servo OFF</td><td>DMOFF</td><td>“VREF”</td></tr></table>	Operation	Command	DMFC output	Motor acceleration	DMFK	“2VREF”	CLV servo ON	DMSV	AFC signal (PWM)	Motor brake	DMBK	“L ”	CLV servo OFF	DMOFF	“VREF”	
			Operation	Command	DMFC output														
			Motor acceleration	DMFK	“2VREF”														
			CLV servo ON	DMSV	AFC signal (PWM)														
			Motor brake	DMBK	“L ”														
CLV servo OFF	DMOFF	“VREF”																	
40	DMPC	O	Disc motor CLV servo APC signal output.																
41	2VREF	—	Analog power supply. (twice the “VREF” voltage)																
42	SEL	O	Servo mode select output. It turns ON/OFF the laser diode (LD) and focus servo.																
			<table><tr><th>SEL output</th><th>LD</th><th>Focus servo</th><th>Operating mode</th></tr><tr><td>“L”</td><td>OFF</td><td>OFF</td><td>LD OFF</td></tr><tr><td>“HiZ”</td><td>ON</td><td>OFF</td><td>Focus search</td></tr><tr><td>“H”</td><td>ON</td><td>ON</td><td>Focus ON (normal play)</td></tr></table>	SEL output	LD	Focus servo	Operating mode	“L”	OFF	OFF	LD OFF	“HiZ”	ON	OFF	Focus search	“H”	ON	ON	Focus ON (normal play)
			SEL output	LD	Focus servo	Operating mode													
			“L”	OFF	OFF	LD OFF													
			“HiZ”	ON	OFF	Focus search													
“H”	ON	ON	Focus ON (normal play)																
43	FCSI	O	Focus actuator drive signal output during focus search mode. “VDDA” to move the lens far from disc. “L” to move the lens closer to disc. Normally “HiZ”.																
44	FKIC	O	Focus actuator drive signal output during focus adjustment mode. “VDDA” to move the lens far from disc. “L” to move the lens closer to disc. Normally “HiZ”.																
45, 46	FEL1, FEL2	O	Focus gain adjustment analog switch output. “VREF” or “HiZ”.																
47	FEI	I	Focus error signal input.																
48	TESH	I	Analog switch input to track error signal sample-and-hold.																
49	TEOF	O	Focus gain adjustment analog switch output. “VREF” when tracking servo off.																
50	SBAD	I	Sub beam added signal input.																
51	RFRP	I	RF ripple signal input.																
52	VREF	—	Analog power supply.																
53	RFI	I	RF signal input.																
54	GNDA	—	Analog GND.																
55	DTSC2	O	Data slice control EFM signal inverted output.																
56	MONI T	O	Internal signal monitored output. EFMO, PLCK or LOCK signals can be selected by command. Can be muted. (Not used)																
57	DTSC 1	O	Data slice control EFM signal positive polarity output.																
58	VDDA	—	Analog power supply.																
59	PDCNT	I	PDO output control signal input. “L” to fix to “HiZ” forcibly. “H” : normal output.																
60	PDO	O	Phase error signal between EFM and PLCK signals is output.																
61	TMAX	O	TMAX detected result output.																
			<table><tr><th>TMAX detected result</th><th>TMAX output</th></tr><tr><td>Longer than specified cycle</td><td>“L”</td></tr><tr><td>Shorter than specified cycle</td><td>“VREF”</td></tr><tr><td>Within specified cycle</td><td>“HiZ”</td></tr></table>	TMAX detected result	TMAX output	Longer than specified cycle	“L”	Shorter than specified cycle	“VREF”	Within specified cycle	“HiZ”								
			TMAX detected result	TMAX output															
			Longer than specified cycle	“L”															
			Shorter than specified cycle	“VREF”															
Within specified cycle	“HiZ”																		
62	LPFN	I	Low-pass filter amplifier inverted input.																

Pin No.	Pin name	I/O	Description
63	LPFO	O	Low-pass filter amplifier output.
64	VCOF	O	VCO filter output.
65	TESTX	I	TEST pin. Normally “H” or “L” .(Connected to +5 V)
66	HS	O	Double speed mode output. “H” : normal speed. “L” : double speed
67	GNDD	—	Digital GND.
68	SPDA	O	Processor status signal output.
69	COFS	O	Correction circuit frame clock (7.35 kHz) output.
70	WDCK	O	Word clock (88.2 kHz) output. SUBQ, BUF0V or 1PF can be selected by the μ processor command. (Not used)
71	CHCK	O	Channel clock (44.1 kHz) output. “L” for L-channel. “H” for R-channel.
72	BCK	O	Bit clock (1.4112 MHz) output.
73	AOUT	O	Audio data output. (Not used)
74	EMPH	O	Emphasis ON/OFF select signal. “H” : emphasis ON. “L” for emphasis OFF
75	DOUT	O	DIGITAL SIGNAL output.
76	TEST2	I	TEST pin. Normally “H”.
77	VDDX	—	Crystal oscillator circuit power supply.
78	XI	I	External crystal oscillator is connected. (Crystal oscillator frequency 16.9344 MHz)
79	XO	O	External crystal oscillator is connected. (Crystal oscillator frequency 16.9344 MHz)
80	GNDX	—	Crystal oscillator GND.

IC, TA8191F

Pin No.	Pin Name	I/O	Description
1	TPO	O	Sub beam I-V amplifier (TA Amp) output terminal.
2	TPI	I	Sub beam I-V amplifier (TA Amp) input terminal.
3	TNI	I	Sub beam I-V amplifier (TA Amp) input terminal.
4	FNI	I	Main beam I-V amplifier (FN Amp) input terminal.
5	FPI	I	Main beam I-V amplifier (FP Amp) input terminal.
6	LDO	O	Laser diode amplifier (LD Amp) output terminal.
7	MDI	I	Monitor photo diode amplifier (MD Amp) input terminal.
8	RFN	I	RF amplifier reversed phase input terminal.
9	RFO	O	RF amplifier output terminal.
10	RFI	I	RF ripple signal generator circuit input terminal.
11	VREF	O	Reference voltage output terminal (+2.1 V).
12	RFRP	O	RF ripple signal output terminal.
13	SBAD	O	Scar detection signal output terminal.
14	FEB	I	Focus error balance adjustment input terminal.
15	FEO	O	Focus error amplifier (FE Amp) output terminal.
16	SEL	I	Analog switch control signal input terminal.
17	VEE	—	Power supply terminal. (TA8190F; -5 V, TA8191F; GND)
18	FSN	I	Focus output amplifier (FS Amp) reversed phase input terminal.
19	FSO	O	Focus output amplifier (FS Amp) output terminal.
20	COSC	O	External capacitor to generate focus search signal is connected to this terminal.
21	OSCI	I	External input to control the built-in power supply to generate focus search signal is connected to this terminal.
22	GND	—	GND.
23	VCC	I	Power supply terminal (+5 V).
24	DMEP	I	Disc motor amplifier (DM Amp) positive phase input terminal.
25	DMEN	I	Disc motor amplifier (DM Amp) reversed phase input terminal.
26	DMEO	O	Disc motor amplifier (DM Amp) output terminal.
27	DMPO	O	Disc motor drive amplifier (DMP Amp) output terminal. (Not used).
28	PVR	I	Drive amplifier reference voltage input terminal.
29	FMPO	O	Feed motor drive amplifier (FMP Amp) output terminal. (Not used).
30	FMEO	O	Feed motor amplifier (FM Amp) output terminal.
31	FMEN	I	Feed motor amplifier (FM Amp) reversed phase input terminal.
32	FMEP	O	Feed motor amplifier (FM Amp) positive phase input terminal.
33	FAPO	O	Focus actuator drive amplifier (FAP Amp) output terminal. (Not used).
34	2VRO	I	2 V REF amplifier (2 V REF Amp) output terminal.
35	2VRP	I	2 V REF amplifier (2 V REF Amp) positive phase input terminal.
36	2VRN	I	2 V REF amplifier (2 V REF Amp) reversed phase input terminal.
37	TS2O	O	Tracking servo amplifier 2 (TS2 Amp) output terminal.
38	TS2N	I	Tracking servo amplifier 2 (TS2 Amp) reversed phase input terminal.
39	TS2P	I	Tracking servo amplifier 2 (TS2 Amp) positive phase input terminal.
40	TS1O	O	Tracking servo amplifier 1 (TS1 Amp) output terminal.

Pin No.	Pin Name	I/O	Description
41	TS1N	I	Tracking servo amplifier 1 (TS1 Amp) reversed phase input terminal.
42	TS1P	I	Tracking servo amplifier 1 (TS1 Amp) positive phase input terminal.
43	TSO	O	Tracking output amplifier (TS Amp) output terminal.
44	TSN	I	Tracking output amplifier (TS Amp) reversed phase input terminal.

TEST MODE

1. How to Activate CD Test Mode

Insert the AC plug while pressing the function CD button.
All FL display tubes will light up, and the test mode will be activated.

2. How to Cancel CD Test Mode

Either one of the following operations will cancel the CD test mode.

- Press the function button.
- Press the power switch button.
- (except CD function button)
- Disconnect the AC plug

3. CD Test Mode Functions

When test mode is activated, the following mode functions from No.1 to No.5 can be used by pressing the operation keys.

Mode/No.	Operation	FL display	Operation	Contents
Start mode No.1	Activation	All lamps light	• Test mode is activated.	• FL display check (All displays light.)
Search mode No.2	■ key		• Laser diode turns always ON. (CD block power is ON.) • Continual focus search (The pickup lens repeats the full-swing up-down motion.) * Avoid continual searches that last for more than 10 minutes. * NOTE 1	• APC circuit check • Laser current measurement (Laser current control. Across a resistor connected between emitter and GND.) FOCUS SERVO • Check focus search waveform • Check focus error waveform (FOK/FZC are not monitored in the search mode)
Play mode No.3	◀▶ key		• Normal playback • Focus search is continued if TOC cannot be read. * NOTE 1	FOCUS SERVO/TRACKING SERVO CLV SERVO/SLED SERVO Check FOK/FZC
Traverse mode No.4	key		• During normal disc playback Press once; tracking servo OFF Press twice; tracking servo ON * NOTE 2	TRACKING SERVO ON/OFF Tracking balance (traverse) adjustment
Sled mode No.5	◀◀ key ▶▶ key	All lamps light	• Pickup moves to the outermost track • Pickup moves to the innermost track * NOTE 3 (During playback, machine operates normally.)	SLED SERVO Check SLED mechanism operation

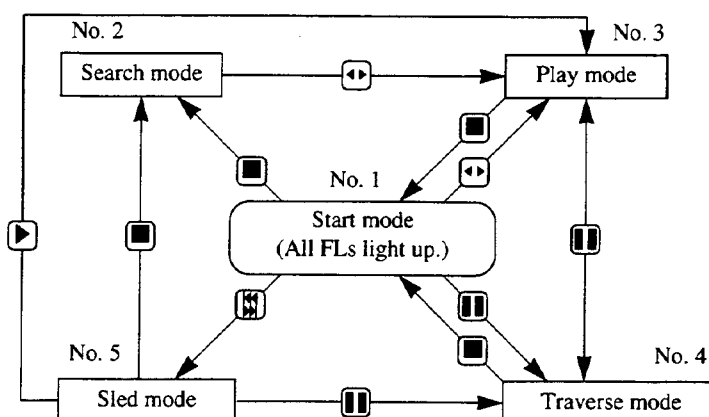
* NOTE 1: There are cases when the tracking servo cannot be locked owing to the protection circuit being operated when heat builds up in the driver IC if the focus search is operated continually for more than 10 minutes. In these cases the power supply should be switched off for 10 minutes until heat has been reduced and then re-started.

* NOTE 2: Do not press the ◀◀ or ▶▶ keys when the machine is in the || status is active. If they are pressed, playback will not be possible after the || status has been canceled. If the ◀◀ or ▶▶ keys are pressed in the || status, press the ■ key and return to the start mode (No.1).

* NOTE 3: When pressing the ◀◀ or ▶▶ keys, take care to avoid damage to the gears. Because the sled motor is activated when the ◀◀ or ▶▶ keys are pressed, even when the pick-up is at the outermost or innermost track.

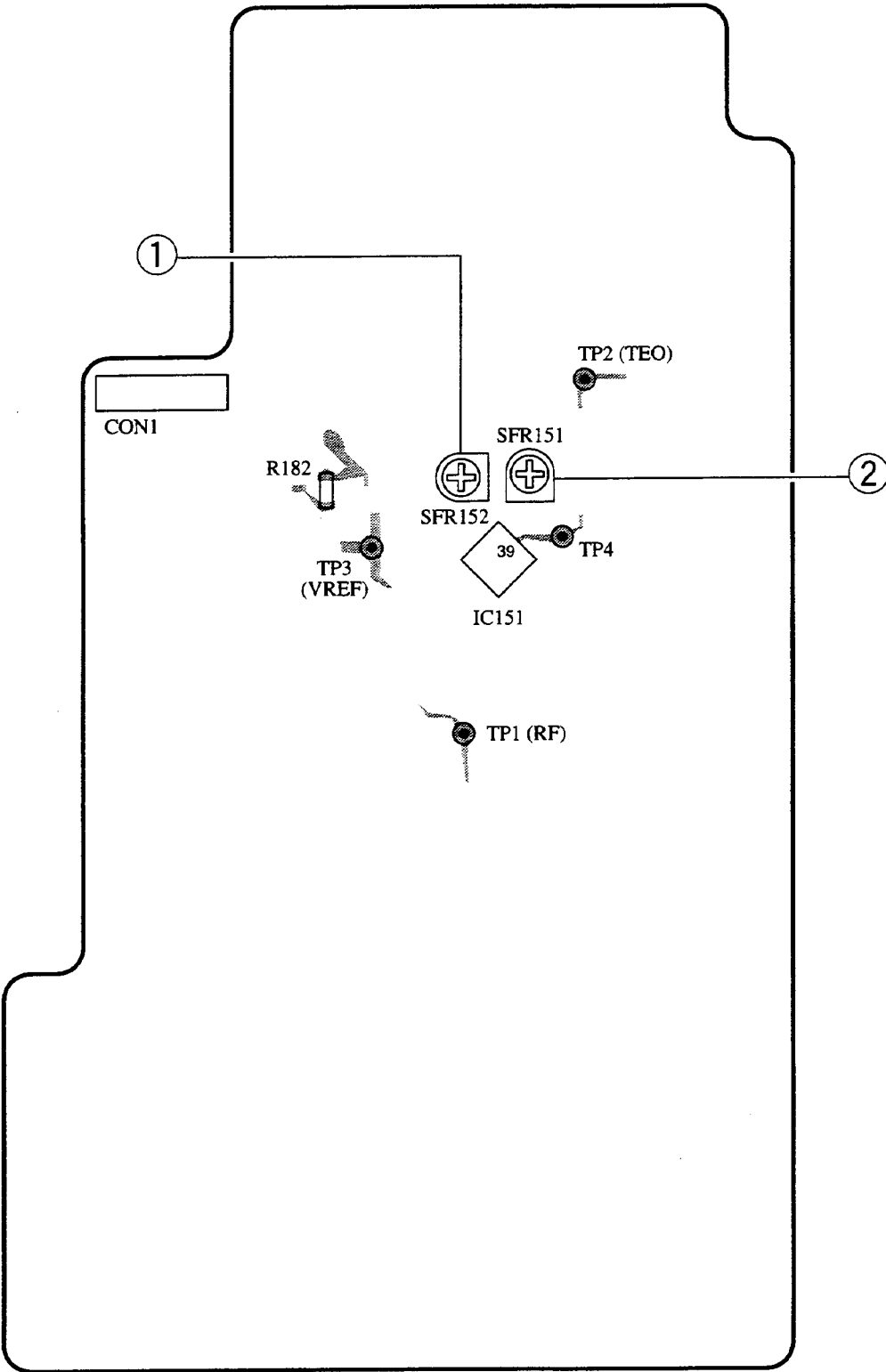
4. Operation Outline

The operation of each mode is carried out in the direction of the arrows from the start mode as indicated in the following illustration.



If the DISC DIRECT PLAY button is pressed, the machine performs the same operation as the PLAY button is pressed as shown. If the tray is opened by pressing OPEN/CLOSE button during Play mode or Traverse mode, the machine returns to the Start mode.

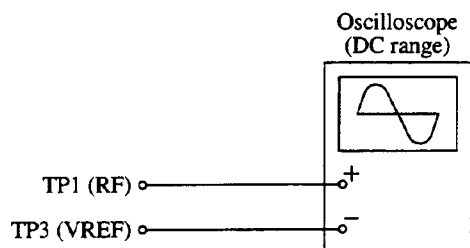
A 3CD C.B (PATTERN SIDE)



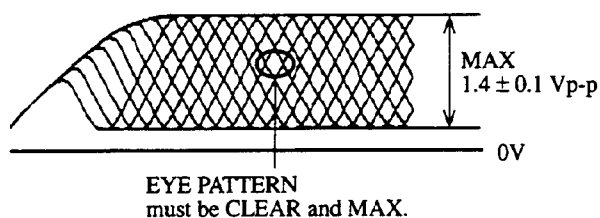
- Note:
- Connect a probe (10: 1) of the oscilloscope or the frequency counter to a test point.
 - During adjustment, connect (⊖) pin of an oscilloscope to TP3 (VREF).

1. Focus Bias Adjustment

Make the focus bias adjustment when replacing and repairing the optical block.

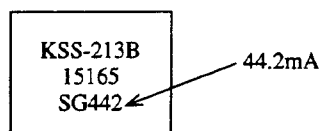


- 1) Connect an oscilloscope to test points TP1 (RF) and TP3 (VREF).
- 2) Turn on the power switch.
- 3) Insert test disc TCD-782 (YEDS-18) and play back the second program.
- 4) Adjust SFR152 so that RF signal of the test point TP2 (RF) is MAX and CLEARREST.



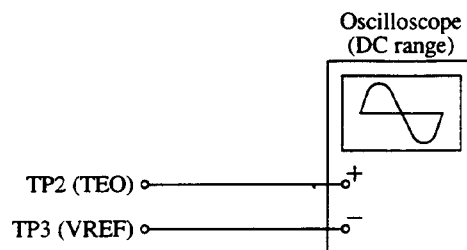
VOLT/DIV: 0.5V
TIME/DIV: 0.5μS

Note : The current of the laser signal can be checked with the voltages on both sides of R182 (voltage across 10Ω). The difference for the specified value shown on the label must be within ± 6.0mA.

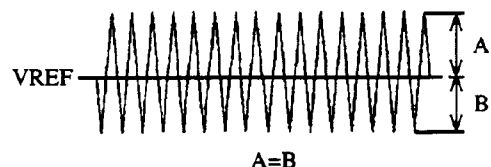


$$\text{Laser current } I_{op} = \frac{\text{Voltage across R182}}{10\Omega}$$

2. Tracking Balance Adjustment



- 1) Short circuit between TP3 (VREF) and TP4.
- 2) Connect an oscilloscope to test points TP2 (TEO) and TP3 (VREF).
- 3) Turn on the power switch.
- 4) Insert test disc TCD-782 (YEDS-18) and press the PLAY (▶) button.
- 5) Adjust SFR151 so that the waveform on the oscilloscope is vertically symmetrical as shown in the figure below.
- 6) After the adjustment is completed, remove the connected lead wires from the test point TP3 (VREF) and TP4.



VOLT/DIV: 20mV
TIME/DIV: 2mS

4ZG-1Z

ELECTRICAL MAIN PARTS LIST

DESCRIPTION で判断できない物は“REFERENCE NAME LIST”を参照してください。
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF.NO.	PART NO.	カンリ NO.	DESCRIPTION	REF.NO.	PART NO.	カンリ NO.	DESCRIPTION
IC				C103	87-012-149-089		C-CAP, S 30P-50 CH
	87-A20-165-010		C-IC, LA9230M	C105	87-010-196-089		C-CAP, S 0.1-25 F
	87-A20-164-010		C-IC, LC78630E-T	C106	87-010-196-089		C-CAP, S 0.1-25 F
	87-017-888-089		IC, NJM4558MD	C108	87-010-154-089		C-CAP, S 10P-50 CH
	87-070-305-019		IC, BA6897S	C109	87-010-154-089		C-CAP, S 10P-50 CH
	87-001-982-019		IC, TA7291S				
TRANSISTOR				C111	87-010-196-089		C-CAP, S 0.1-25 F
	87-026-463-089		TR, 2SA933S (RS)	C112	87-010-404-089		CAP, E 4.7-50 SME
	89-406-555-089		TR, 2SD655E	C113	87-010-196-089		C-CAP, S 0.1-25 F
	89-320-011-089		TR, 2SC2001K	C114	87-010-263-089		CAP, E 100-10 SME
	87-026-223-089		C-TR, DTC143TK	C201	87-010-318-089		C-CAP, S 47P-50 CH
	89-113-187-089		TR, 2SA1318TU				
	87-026-470-089		TR, HNC03 F B	C202	87-010-318-089		C-CAP, S 47P-50 CH
	87-026-608-089		C-TR, DTC 123 JK	C203	87-010-321-089		C-CAP, S 82P-50 CH
	89-327-125-089		C-TR, 2SC2712GR<D>	C204	87-010-321-089		C-CAP, S 82P-50 CH
DIODE				C205	87-010-321-089		C-CAP, S 82P-50 CH
	87-020-465-089		DIODE, 1SS133	C206	87-010-321-089		C-CAP, S 82P-50 CH
3CD C.B				C207	87-010-318-089		C-CAP, S 47P-50 CH
C11	87-016-081-089		C-CAP, S 0.1-16 RK	C208	87-010-318-089		C-CAP, S 47P-50 CH
C12	87-012-157-089		C-CAP, S 330P-50 CH	C209	87-010-318-089		C-CAP, S 47P-50 CH
C13	87-016-369-089		C-CAP, S 0.033-25 B K	C210	87-010-318-089		C-CAP, S 47P-50 CH
C14	87-016-081-089		C-CAP, S 0.1-16 RK	C211	87-010-403-089		CAP, E 3.3-50 SME
C15	87-010-596-089		C-CAP, S 0.047-16 RK				
C16	87-010-956-089		C-CAP, S 0.068-25 B	C212	87-010-403-089		CAP, E 3.3-50 SME
C17	87-010-182-089		C-CAP, S 2200P-50 B	C213	87-010-186-089		C-CAP, S 4700P-50 B
C18	87-016-369-089		C-CAP, S 0.033-25 B K	C214	87-010-186-089		C-CAP, S 4700P-50 B
C19	87-010-213-089		C-CAP, S 0.015-25 B	C215	87-010-555-049		CAP, E 100-10 GAS
C20	87-010-178-089		C-CAP, S 1000P-50 B	C216	87-010-384-089		CAP, E 100-25 SME
C21	87-012-393-089		C-CAP, S 0.22-16, R, K	C301	87-010-196-089		C-CAP, S 0.1-25 F
C22	87-016-083-089		C-CAP, S 0.15-16 RK	C302	87-010-260-089		CAP, E 47-25 SME
C23	87-010-197-089		C-CAP, S 0.01-25 B	C501	87-010-221-089		CAP, E 470-10 11L
C24	87-010-186-089		C-CAP, S 4700P-50 B	C502	87-010-197-089		C-CAP, S 0.01-25 B
C25	87-015-694-089		CAP E 0.47-50-7L	C504	87-010-196-089		C-CAP, S 0.1-25 F
C26	87-010-322-089		C-CAP, S 100P-50 CH				
C27	87-015-686-089		CAP, E 22-25 7L	C505	87-010-196-089		C-CAP, S 0.1-25 F
C28	87-015-697-089		CAP, E 3.3-50 7L	C506	87-010-196-089		C-CAP, S 0.1-25 F
C29	87-010-184-089		C-CAP, S 3300P-50 B	C507	87-010-196-089		C-CAP, S 0.1-25 F
C30	87-010-146-089		C-CAP, S 2P-50 CH	C509	87-010-196-089		C-CAP, S 0.1-25 F
C31	87-010-186-089		C-CAP, S 4700P-50 B	C510	87-010-196-089		C-CAP, S 0.1-25 F
C32	87-010-148-089		C-CAP, S 4P-50 CH				
C33	87-016-081-089		C-CAP, S 0.1-16 RK	C601	87-010-197-089		C-CAP, S 0.01-25 B
C35	87-010-196-089		C-CAP, S 0.1-25 F	C602	87-010-381-089		CAP, E 330-16 SME
C37	87-010-405-089		CAP, E 10-50 SME	C603	87-010-196-089		C-CAP, S 0.1-25 F
C38	87-010-263-089		CAP, E 100-10 SME	C701	87-010-322-089		C-CAP, S 100P-50 CH
C39	87-010-197-089		C-CAP, S 0.01-25 B	C702	87-010-322-089		C-CAP, S 100P-50 CH
C40	87-010-401-089		CAP, E 1-50 SME				
C41	87-016-463-089		C-CAP, S 0.33-16 B	C703	87-010-322-089		C-CAP, S 100P-50 CH
C42	87-010-263-089		CAP, E 100-10 SME	C704	87-010-322-089		C-CAP, S 100P-50 CH
C43	87-018-134-089		CAP, TC-U 0.01-16 Y	C705	87-018-131-089		CAP, TC-U 1000P-50 B
C44	87-010-263-089		CAP, E 100-10 SME	C901	87-010-260-089		CAP, E 47-25 SME<D>
C46	87-010-196-089		C-CAP, S 0.1-25 F	C902	87-010-196-089		C-CAP, S 0.1-25 F<D>
C47	87-015-684-010		CAP, E 47-16 7L				
C48	87-010-196-089		C-CAP, S 0.1-25 F	FC1	85-NFT-611-119		FF-CABLE, 16P-1.0
C50	87-010-197-089		C-CAP, S 0.01-25 B	FC4	84-ZG1-614-219		CABLE, FFC 5P-1.25
C51	87-010-263-089		CAP, E 100-10 SME	FC5	84-ZG1-630-019		CABLE FFC 6P-1.25
C101	87-016-081-089		C-CAP, S 0.1-16 RK	L11	87-003-102-089		COIL, 10UH
C102	87-016-081-089		C-CAP, S 0.1-16 RK	LED901	87-A40-123-019		LED, SLZ-8128A-01-B<D>
LED C.B							
				M601	87-045-383-019		MOT, M9I T2
				R102	87-022-345-089		C-RES, S 1.2K-1/10W F
				SW701	87-036-109-019		SW, PUSH SPPB 61
				SW702	87-036-109-019		SW, PUSH SPPB 61
				X101	87-030-402-089		VIB, XTAL 16.9344 MHZ
				LED701	87-070-200-089		LED, SLP636C-81-S-T1
				LED702	87-017-350-080		LED, SEL1550CM
				LED703	87-017-350-080		LED, SEL1550CM
				LED704	87-070-200-089		LED, SLP636C-81-S-T1

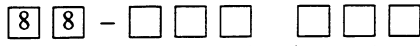
BLOCK DIAGRAM

REF. NO.	PART NO.	カンリ NO.	DESCRIPTION
T-T C.B			
C401	87-018-214-089		CAP TC U 0.1-50 F
M401	87-045-364-019		MOTOR, (BCH3B14)
PS401	87-026-573-019		P-SNSR, GP1S53V

DRIVE C.B			
M1	87-045-358-019		MOT, RF-310TA 43
M2	87-045-356-019		MOT, RF-310TA 30
SW1	87-A90-042-019		SW, LEAF MSW 17310 MVPO

○ チップ抵抗部品コード / CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding



抵抗部品コード
Resistor Code

桁表示
Figure

抵抗値
Value of resistor

チップ抵抗
Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法 / Dimensions (mm)				抵抗コード : A Resistor Code: A
				外形 / Form	L	W	t	
1/16W	1608	±5%	CJ		1.6	0.8	0.45	108
1/10W	2125	±5%	CJ		2	1.25	0.45	118
1/8W	3216	±5%	CJ		3.2	1.6	0.55	128

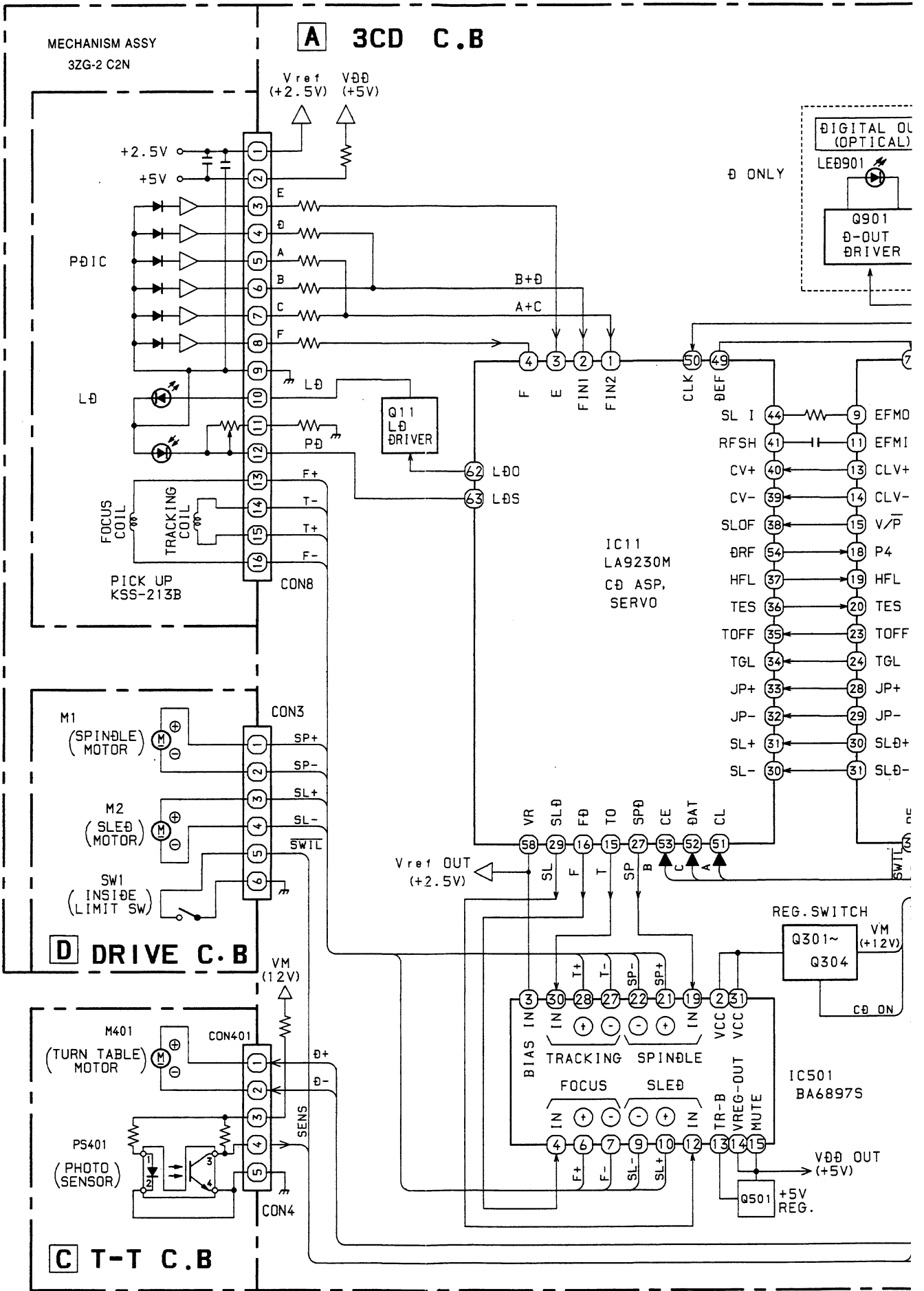
Refer to the following pages for the 4ZG-1 and the common sections.

■ MECHANICAL EXPLODED VIEW 1 / 1

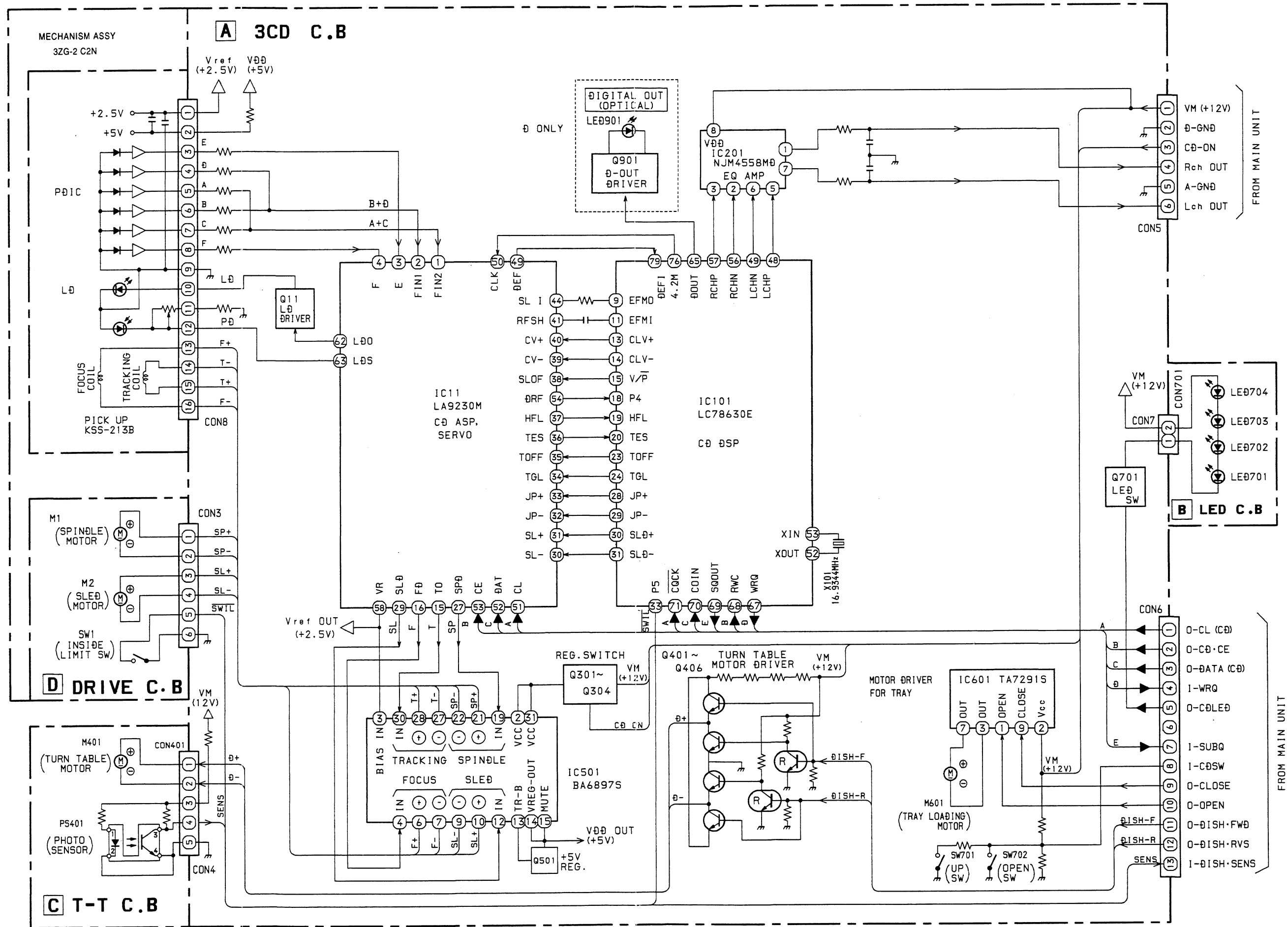
See page 95

■ MECHANICAL PARTS LIST 1 / 1

See page 96



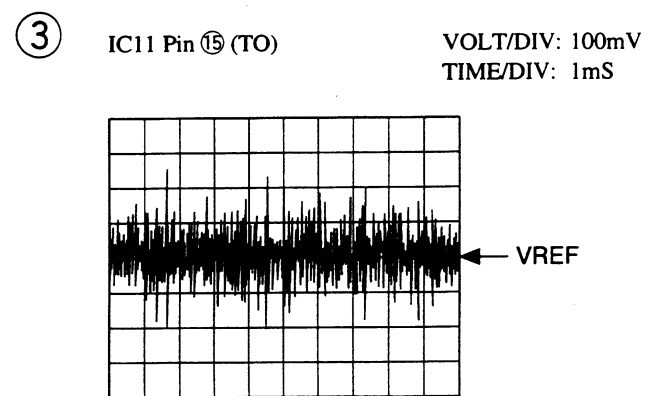
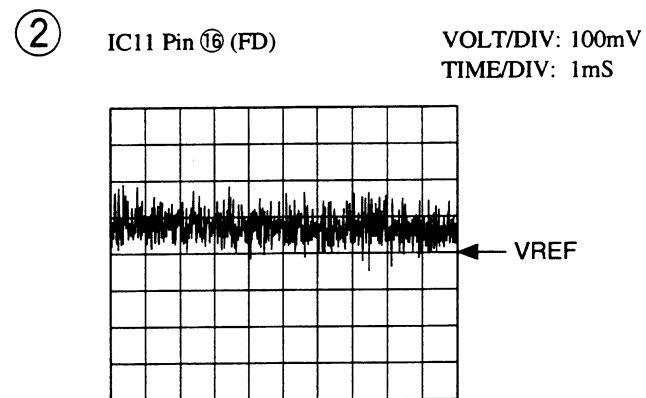
BLOCK DIAGRAM



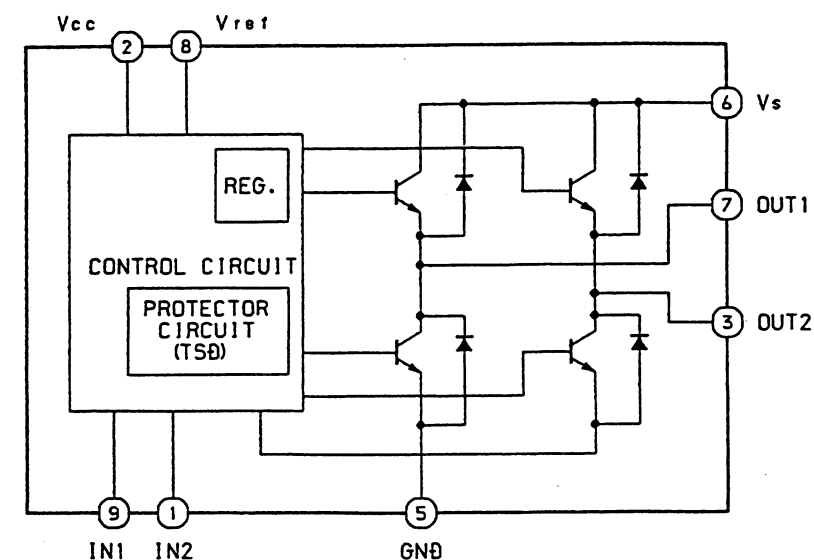
① IC11 Pin ④ (RFSM) VOLT/DIV: 0.5V
TIME/DIV: 1μS

MAX
 $2.0 \pm 0.1 V_{p-p}$
0 V

EYE PATTERN
must be CLEAR and MAX.

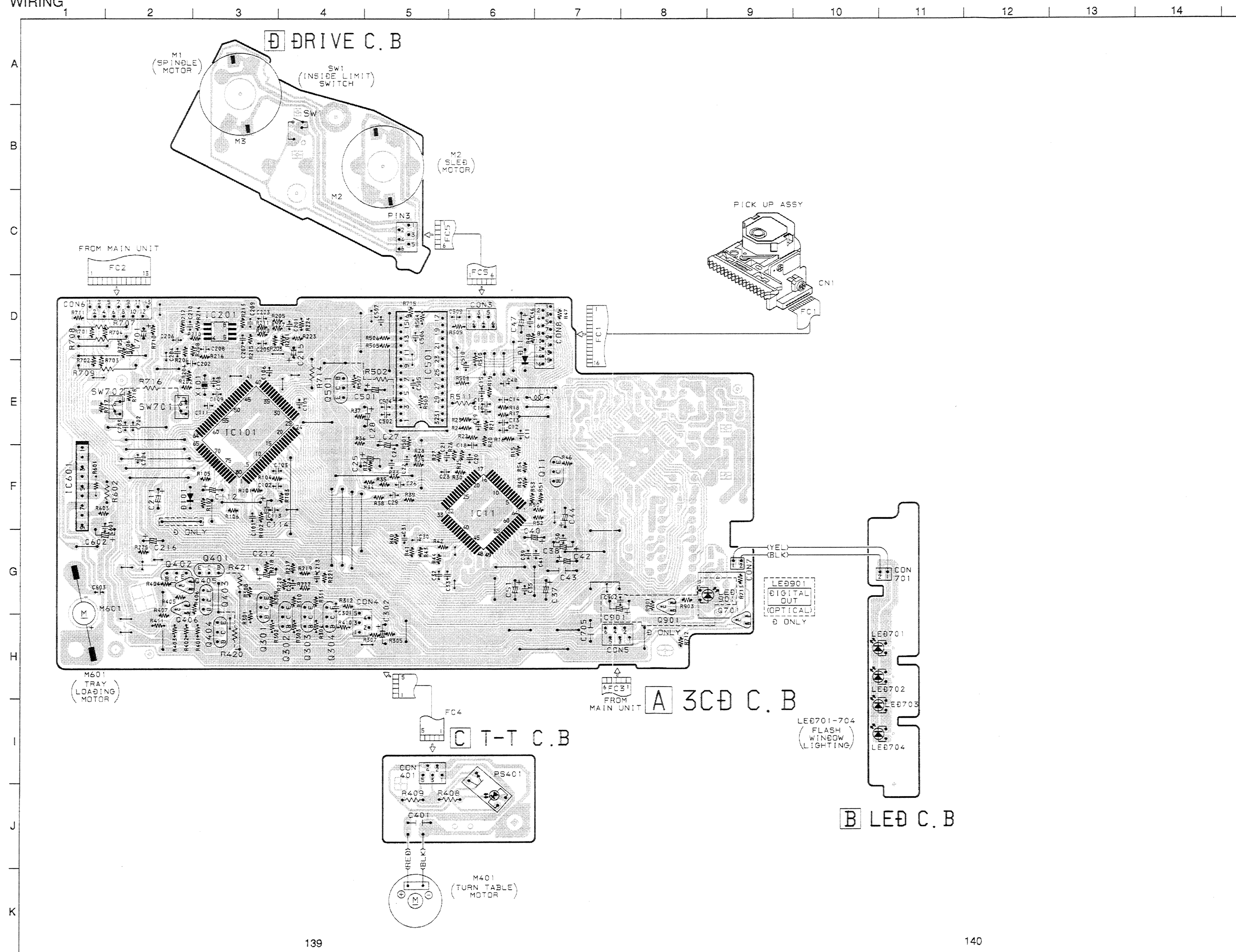


IC, TA7291



INPUT		OUTPUT		MODE
IN1	IN2	OUT1	OUT2	
0	0	∞	∞	STOP
1	0	H	L	CW
0	1	L	H	CCW
1	1	L	L	BRAKE

∞ : HI IMPEDANCE
 NOTE : INPUT "H" ACTIVE



IC DESCRIPTION

IC, LC78630E

Pin No.	Pin Name	I/O	Description
1	VPDO	O	Vari-pitch PLL charge pump output pin. This pin must be open when not used.
2	PDO2	O	Bit clock playback PLL charge pump output pin during 2 times and 4 times speed. This pin must be open when not used.
3	PDO1	O	Bit clock playback PLL charge pump output pin during normal speed.
4	AVSS	—	Analog system GND. Normally 0V.
5	FR	I	An external resistor to set built-in VCO frequency range is connected to this pin.
6	AVDD	—	Analog system GND.
7	ISSET	I	An external resistor set PD01 and PD02 output current is connected to this pin.
8	TAI	I	Test input pin with built-in pull-down resistor.
9	EFMO	O	EFM signal output pin.
10	VSS	—	Digital system GND. Normally 0V.
11	EFMI	I	EFM signal input pin.
12	TEST1	I	Test input pin with built-in pull-down resistor.
13	CLV+	O	Spindle servo control output pin. Acceleration when CLV+ is "H".
14	CLV-	O	Deceleration when CLV- is "H".
15	V/P	O	Rough servo/phase control automatic selection monitoring output pin. Rough servo at "H". Phase control mode at "L".
16, 17	TEST2, TEST3	I	Test input pin with built-in pull-down resistor.
18	P4	I/O	Input/output port.
19	HFL	I	Tracking detection signal input pin. Schmitt input.
20	TES	I	Tracking error signal input pin. Schmitt input.
21	PCK	O	EFM data playback bit clock monitoring pin. 4.3218 MHz when phase is locked during normal speed playback.
22	FSEQ	O	Sync signal detection output pin. When the sync signal detected from the EFM signal agrees with the internally generated sync signal, "H" output.
23	TOFF	O	Tracking OFF output pin.
24	TGL	O	Tracking gain selector output pin. Gain is increased at "L".
25	THLD	O	Tracking hold output pin.
26	TEST4	I	Test input pin with built-in pull-down resistor.
27	VDD	—	Digital system GND.
28, 29	JP+, JP-	O	Tracking jump output pin. JP+ "H" occurs at acceleration during jump toward outside or decelerator toward inside. JP- "H" occurs at acceleration during jump toward inside or deceleration toward outside.
30, 31	SLD+, SLD-	O	Sled output pin. Four different level can be set using commands.
32	EMPH	O	Emphasis monitoring output. "H" indicates that emphasis disc is being played back.
33	P5	I/O	Input/output.
34	LRCKO	O	Digital filter output. LR clock output pin.
35	DFLRO	O	Digital filter output. LR data output pin. DF is turned OFF with the DFOFF command.
36	DACKO	O	Digital filter output. Bit clock output pin.
37	CONT1	O	Output port.

Pin No.	Pin Name	I/O	Description
38	P0/DFCK	I/O	Input/output port. The DF bit clock input pin during the anti-shock mode.
39	P1/DFIN	I/O	Input/output port. The DF data input pin during the anti-shock mode.
40	P2	I/O	Input/output port. Deemphasis filter ON/OFF selection input pin during the anti-shock mode. Deemphasis filter ON at "H".
41	P3/DFLR	I/O	Input/output port. The DF LR clock input pin during the anti-shock mode.
42	LRSY	O	For ROMXA • LR clock output pin.
43	CK2	O	For ROMXA • Bit clock output pin. Polarity inversion by the CK2CON command.
44	ROMXA	O	For ROMXA • Interpolation data output pin. The un-interpolated data is output with the ROMXA command.
45	C2F	O	For ROMXA • C2 flat output pin.
46	MUTEL	O	For 1-bit DAC • L-channel mute output pin.
47	LVDD	—	For 1-bit DAC • L-channel power supply.
48	LCHP	O	For 1-bit DAC • L-channel P output pin.
49	LCHN	O	For 1-bit DAC • L-channel N output pin.
50	LVSS	—	For 1-bit DAC • L-channel GND. Normally 0 V.
51	XVSS	—	Crystal oscillator GND. Normally 0 V.
52	XOUT	O	An external 16.9344 MHz crystal oscillator is connected to this pin.
53	XIN	I	33.8688 MHz crystal oscillator is connected during 4 time speed playback.
54	XVDD	—	Crystal oscillator GND.
55	RVSS	—	For 1-bit DAC • R-channel GND. Normally 0 V.
56	RCHN	O	For 1-bit DAC • R-channel N output pin.
57	RCHP	O	For 1-bit DAC • R-channel P output pin.
58	RVDD	—	For 1-bit DAC • R-channel power supply.
59	MUTER	O	For 1-bit DAC • R-channel mute output pin.
60	SBSY	O	Subcode block sync signal output pin.
61	EFLG	O	C1 and C2 error correction monitoring pin.
62	PW	O	Subcode P, Q, R, S, T, U, V and W output pin.
63	SFSY	O	Subcode frame sync signal output pin. The level falls down when the subcode is in standby.
64	SBCK	I	Subcode read clock input pin. Schmitt input. This pin must be connected GND when not used.
65	DOUT	O	Digital output pin.
66	FSX	O	7.35 kHz sync signal divided from the crystal oscillator is output to this pin.
67	WRQ	O	Subcode Q output standby output pin.
68	RWC	I	Read/write control input pin.
69	SQOUT	O	Subcode Q output pin.
70	COIN	I	Microprocessor command input pin.
71	CQCK	I	Command input read clock or subcode read clock input from SQOUT. Schmitt input.
72	RES	I	Chip reset input pin. This pin goes to "L" once when the main power is turned on.
73	TESTF	O	Test output pin.
74	CONT2	O	Output port.

Pin No.	Pin Name	I/O	Description
75	16M	O	16.9344 MHz crystal output pin. 33.8688 MHz is output during 4 times speed playback.
76	4.2M	O	4.2336 MHz output pin.
77	TEST5	I	Test input pin with built-in pull-down resistor.
78	$\overline{\text{CS}}$	I	Chip select input pin with built-in pull-down resistor.
79	DEFI	I	Defect detection signal input pin. This pin must be connected GND when not used.
80	VCOC	I	Vari-pitch VCO control input pin. This pin must be connected GND when not used.

IC, LA9230M

Pin No.	Pin Name	I/O	Description
1	FIN2	I	Photo diode of pickup is connected to this pin. This signal is added to the FIN1 pin signal to produce the RF signal and subtracted to produce the FE signal.
2	FIN1	I	Photo diode of pickup is connected to this pin.
3	E	I	Photo diode of pickup is connected to this pin. This signal is subtracted from the F pin signal to produce the FE signal.
4	F	I	Photo diode of pickup is connected to this pin.
5	TB	I	DC component of the TE signal is input to this pin.
6	TE-	I	The TE signal gain adjustment resistor is connected between this pin and the TE pin.
7	TE	O	The TE signal output pin.
8	TESI	I	TES (Track Error Sense) comparator input pin. The TE signal is input after passing through band-pass filter.
9	SCI	I	Shock sense input signal is connected to this pin.
10	TH	I	Tracking gain time constant setting pin.
11	TA	O	TA amplifier output pin.
12	TD-	I	An external tracking phase compensation constant is connected between the TD and VR pins.
13	TD	I	An external tracking phase compensation setting pin.
14	JP	I	Tracking jump signal (kick pulse) amplitude setting pin.
15	TO	O	Tracking control signal output pin.
16	FD	O	Focusing control signal output pin.
17	FD-	I	A focusing phase compensation constant is connected between the FD and FA pins.
18	FA	I	A focusing phase compensation constant is connected between the FD- and FA- pins.
19	FA-	I	A focusing phase compensation constant is connected between the FA and FE pins.
20	FE	O	FE signal output pin.
21	FE-	I	An external FE signal gain setting resistor is connected between the TE and this pins.
22	AGND	—	Analog signal GND.
23	SP	O	Single-ended output of the CV+ and CV- pin input signal.
24	SPI	I	Spindle amplifier input.
25	SPG	I	An external spindle gain in 12 cm mode setting resistor is connected to this pin.
26	SP-	I	An external spindle phase compensation constant together with the SPD pin, is connected to this pin.
27	SPD	O	Spindle control signal output pin.
28	SLEQ	I	Sled phase compensation constant is connected to this pin.
29	SLD	O	Sled control signal output pin.
30, 31	SL-, SL+	I	Sled advance signal input pin from microprocessor.
32, 33	JP-, JP+	I	Tracking jump signal input pin from DSP.
34	TGL	I	Tracking gain control signal input pin from DSP. Gain low when TGL = "H".
35	TOFF	I	Tracking off control signal input pin from DSP. Tracking off when TGL = "H".
36	TES	O	The TES signal is output from this pin to DSP.
37	HFL	I	The (HIGH FREQUENCY LEVEL) is used to judge whether the main beam is positioned above the bits or mirror.

Pin No.	Pin Name	I/O	Description
38	SLOF	I	Sled servo off control input pin.
39, 40	CV-, CV+	I	CLV error signal input pin from DSP.
41	RFSM	O	RF output pin.
42	RFS-	I	RF gain setting and 3T compensation constant setting pin together with RFSM pin.
43	SLC	O	The (SLICE LEVEL CONTROL) is the signal which control the data slice level of the RF waveform with DSP. The (SLICE LEVEL CONTROL) is from this pin.
44	SLI	I	The input signal which controls the data slice level with DSP, is connected to this pin.
45	DGND	—	Digital system GND.
46	NC [FSC]	—	No connection. (Output pin for focus search smoothing capacity.)
47, 48	NC	—	No connection.
49	DEF	O	Disc defect detection output pin.
50	CLK	I	Reference clock input pin. The DSP 4.23 MHz is input to this pin.
51	CL	I	Microprocessor command clock input pin.
52	DAT	I	Microprocessor command data input pin.
53	CE	I	Microprocessor command chip enable input pin.
54	DRF	O	(DETECT RF) RF level detection output.
55	NC	—	No connection.
56	VCC2	—	Servo system and digital system Vcc pin.
57	REFI	I	A bypass capacitor for reference voltage is connected to this pin.
58	VR	O	Reference voltage output pin.
59	LF2	I	An external disc defect detection constant is connected to this pin.
60	PH1	I	An external RF signal peak holding capacitor is connected to this pin.
61	BH1	I	An external RF signal bottom holding capacitor is connected to this pin.
62	LDD	O	APC circuit output pin.
63	LDS	I	APC circuit input pin.
64	VCC1	—	RF system Vcc pin.

TEST MODE

1. How to Activate CD Test Mode

Insert the AC plug while pressing the function CD button.
All FL display tubes will light up, and the test mode will be activated.

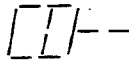
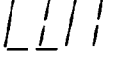
2. How to Cancel CD Test Mode

Either one of the following operations will cancel the CD test mode.

- Press the function button.
- Press the power switch button.
- Disconnect the AC plug

3. CD Test Mode Functions

When test mode is activated, the following mode functions from No.1 to No.5 can be used by pressing the operation keys.

Mode/No.	Operation	FL display	Operation	Contents
Start mode No.1	Activation	All lamps light	• Test mode is activated. • CD block power is ON.	• FL display check (All displays light.)
Search mode No.2	■ key		• Laser diode turns always ON. • Continual focus search (The pickup lens repeats the full-swing up-down motion.) * Avoid continual searches that last for more than 10 minutes. * NOTE 1	• APC circuit check • Laser current measurement (Laser current control. Across a resistor connected between emitter and GND.) FOCUS SERVO • Check focus search waveform • Check focus error waveform (FOK/FZC are not monitored in the search mode)
Play mode No.3	◀▶ key		• Normal playback • Focus search is continued if TOC cannot be read. * NOTE 1	FOCUS SERVO/TRACKING SERVO CLV SERVO/SLED SERVO Check DRF
Traverse mode No.4	key		• During normal disc playback Press once; tracking servo OFF Press twice; tracking servo ON * NOTE 2	TRACKING SERVO ON/OFF Tracking balance (traverse) check
Sled mode No.5	◀◀ key ▶▶ key	All lamps light	• Pickup moves to the outermost track • Pickup moves to the innermost track * NOTE 3 (During playback, machine operates normally.)	SLED SERVO Check SLED mechanism operation

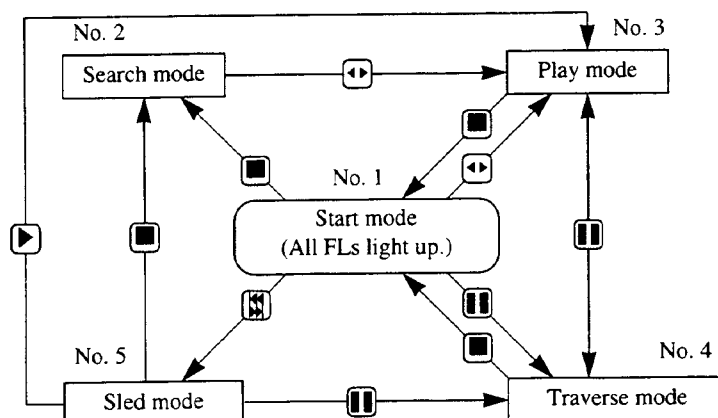
* NOTE 1: There are cases when the tracking servo cannot be locked owing to the protection circuit being operated when heat builds up in the driver IC if the focus search is operated continually for more than 10 minutes. In these cases the power supply should be switched off for 10 minutes until heat has been reduced and then re-started.

* NOTE 2: Do not press the ◀◀ or ▶▶ keys when the machine is in the || status is active. If they are pressed, playback will not be possible after the || status has been canceled. If the ◀◀ or ▶▶ keys are pressed in the || status, press the ■ key and return to the start mode (No.1).

* NOTE 3: When pressing the ◀◀ or ▶▶ keys, take care to avoid damage to the gears. Because the sled motor is activated when the ◀◀ or ▶▶ keys are pressed, even when the pick-up is at the outermost or innermost track.

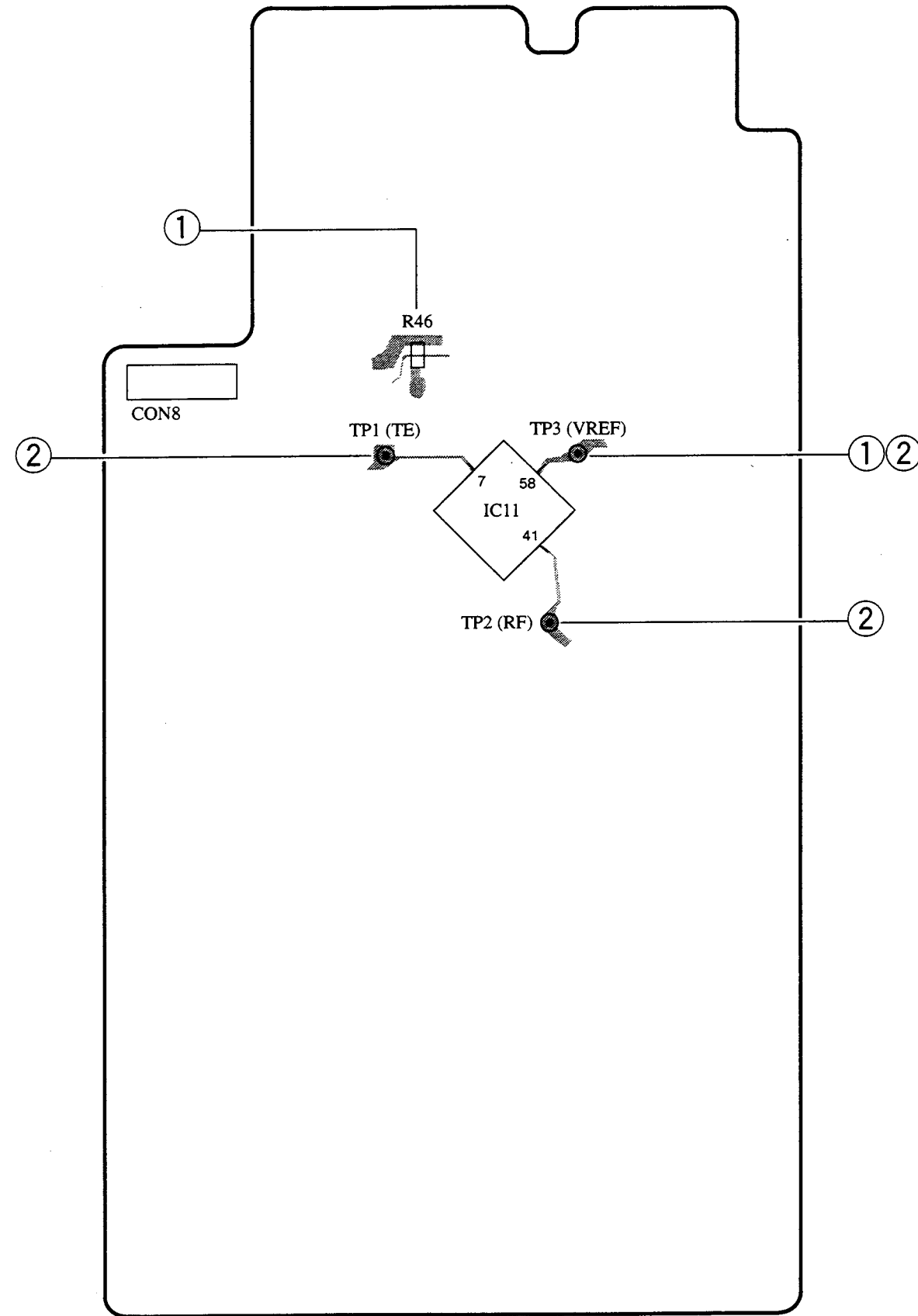
4. Operation Outline

The operation of each mode is carried out in the direction of the arrows from the start mode as indicated in the following illustration.



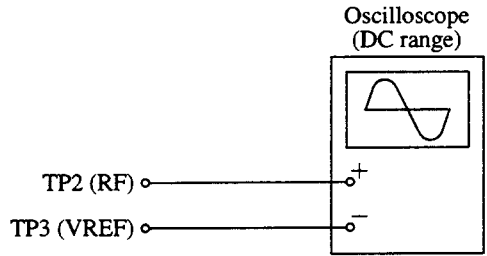
If the DISC DIRECT PLAY button is pressed, the machine performs the same operation as the PLAY button is pressed as shown. If the tray is opened by pressing OPEN/CLOSE button during Play mode or Traverse mode, the machine returns to the Start mode.

A 3CD C.B (PATTERN SIDE)

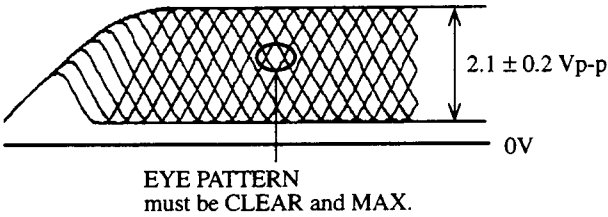


Note: • Connect a probe (10: 1) of the oscilloscope or the frequency counter to a test point.
• During adjustment, connect (⊖) pin of an oscilloscope to TP3 (VREF).

1. RF waveform Check

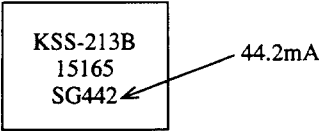


- 1) Connect an oscilloscope to test points TP2 (RF) and TP3 (VREF).
- 2) Turn on the power switch.
- 3) Insert test disc TCD-782 (YEDS-18) and play back the second program.
- 4) Confirm that the waveform at oscilloscope has amplitude of 2.1 V_{p-p} , and clear wedge area in its center.



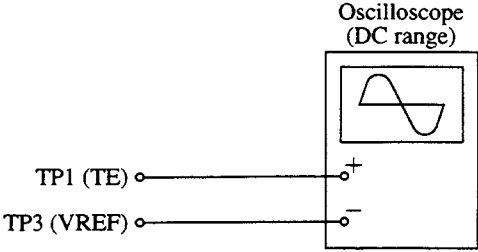
VOLT/DIV: 50mV
TIME/DIV: 0.5μS

Note: The current of the laser signal can be checked with the voltages on both sides of R46 (voltage across 10Ω). The difference for the specified value shown on the label must be within $\pm 6.0\text{mA}$.

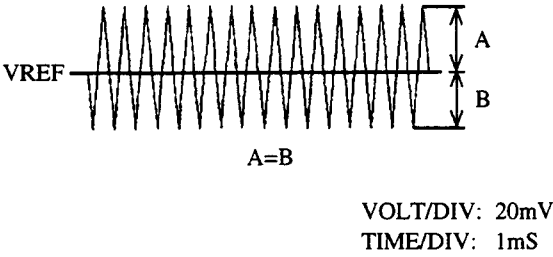


$$\text{Laser current } I_{op} = \frac{\text{Voltage across R46}}{10\Omega}$$

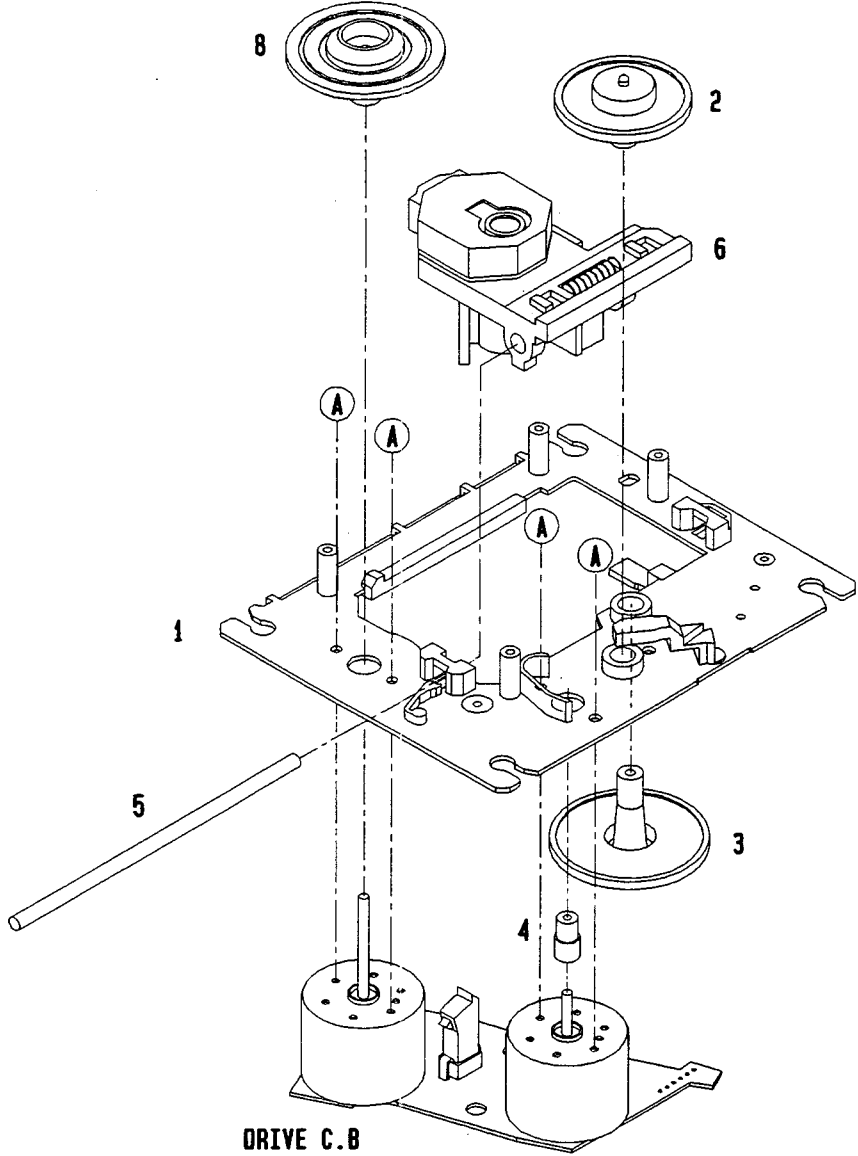
2. Tracking Balance Check



- 1) Connect an oscilloscope to test points TP1 (TE) and TP3 (VREF).
- 2) Start up the CD test mode.
- 3) Insert the test disc TCD-782(YEDS-18) and enter the traverse mode of the CD test mode.
- 4) Confirm that the traverse waveform on an oscilloscope is vertically symmetrical as shown in the figure below.
- 5) After confirming the waveform, release the CD test mode.



CD MECHANISM EXPLODED VIEW 1 / 1 (3ZG-2 C2N <Z>)



USE MODEL LIST

- CX-NAV70 (NSX-AV70)

CX-NAV700 (NSX-AV700)

CX-NAV71 (NSX-AV71)

CX-NAV80 (NSX-AV80)

CX-NAV800 (NSX-AV800)

CX-NAV90 (NSX-AV90)

CX-NAV900 (NSX-AV900)

CX-NK300 (NSX-K300)

CX-NK700 (NSX-K700)

CX-NK77 (NSX-K77)

CX-NK80 (NSX-K80)

CX-NK90 (NSX-K90)

CX-NV300 (NSX-V300)

CX-NV3000 (NSX-V3000)

CX-NV3001 (NSX-V3001)

CX-NV390 (NSX-V390)

CX-NV500 (NSX-V500)

CX-NV700 (NSX-V700)

CX-NV705 (NSX-V705)

CX-NV710 (NSX-V710)

CX-NV715 (NSX-V715)
- CX-NV720 (NSX-V720)

CX-NV770 (NSX-V770)

CX-NV800 (NSX-V800)

CX-NV8000 (NSX-V8000)

CX-NV8080 (NSX-V8080)

CX-NV820 (NSX-V820)

CX-NV900 (NSX-V900)

CX-NV9000 (NSX-V9000)

CX-NV9090 (NSX-V9090)

CX-NV915 (NSX-V915)

CX-NV929 (NSX-V929)

FD-NAKH8 (NSX-AKH8)

FD-NH8 (NSX-AVH8)

FD-NH8 (NSX-AVH8)

FD-NH80 (NSX-AVH80)

FD-NH9 (NSX-AVH9)

FD-NH9 (NSX-AVH9)

FD-NH90 (NSX-AVH90)

FD-SNAKH8 (NSX-AKH8)

FD-SNH9 (NSX-AVH9)

CD MECHANISM PARTS LIST 1 / 1 (3ZG-2 C2N <Z>)

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF.NO	PART NO.	カンリ NO.	DESCRIPTION	REF.NO	PART NO.	カンリ NO.	DESCRIPTION
1	83-ZG2-202-71K		O-SERT S ASSY,S	6	87-070-445-010		PICK-UP,KSS-213B
2	83-ZG2-204-419		GEAR,A	8	83-ZG2-233-019		TURN TABLE,A5
3	83-ZG2-205-219		GEAR,B	A	87-261-032-219		SCREW V+2-3
4	83-ZG2-220-01K		GEAR MOTOR 2				
5	83-ZG2-207-119		SHAFT,SLIDE				

REFERENCE NAME LIST

ELECTRICAL SECTION

DESCRIPTION	REFERENCE NAME
ANT	ANTENNAS
C-	CHIP
C-CAP	CAP, CHIP
C-CAP TN	CAP, CHIP TANTALUM
C-COIL	COIL, CHIP
C-DI	DIODE, CHIP
C-DIODE	DIODE, CHIP
C-FET	FET, CHIP
C-FOTR	FILTER, CHIP
C-JACK	JACK, CHIP
C-LED	LED, CHIP
C-RES	RES, CHIP
C-SFR	SFR, CHIP
C-SLIDE SW	SLIDE SWITCH, CHIP
C-SW	SWITCH, CHIP
C-TR	TRANSISTOR, CHIP
C-VR	VOLUME, CHIP
C-ZENER	ZENER, CHIP
CAP, CER	CAP, CERA-SOL
CAP, E	CAP, ELECT
CAP, M/F	CAP, FILM
CAP, TC	CAP, CERA-SOL
CAP, TC-U	CAP, CERA-SOL SS
CAP, TN	CAP, TANTALUM
CERA FIL	FILTER, CERAMIC
CF	FILTER, CERAMIC
DL	DELAY LINE
E/CAP	CAP, ELECT
FILT	FILTER
FLTR	FILTER
FUSE RES	RES, FUSE
MOT	MOTOR
P-DIODE	PHOTO DIODE
P-SNSR	PHOTO SENSER
P-TR	PHOTO TRANSISTOR
POLY VARI	VARIABLE CAPACITOR
PPCAP	CAP, PP
PT	POWER TRANSFORMER
PTR, RES	PTR, MELF
RC	REMOTE CONTROLLER
RES NF	RES, NON-FLAMMABLE
RESO	RESONATOR
SHLD	SHIELD
SOL	SOLENOID
SPKR	SPEAKER
SW, LVR	SWITCH, LEVER
SW, RTRY	SWITCH, ROTARY
SW, SL	SWITCH, SLIDE
TC CAP	CAP, CERA-SOL
THMS	THERMISTOR
TR	TRANSISTOR
TRIMMER	CAP, TRIMMER
TUN-CAP	VARIABLE CAPACITOR
VIB, CER	RESONATOR, CERAMIC
VIB, XTAL	RESONATOR, CRYSTAL
VR	VOLUME
ZENER	DIODE, ZENER
サージサプレッサ	SERGESUPPRESSOR
セラコン	CAP, CERA

MECHANICAL SECTION

DESCRIPTION	REFERENCE NAME
ADHESHIVE	SHEET ADHESHIVE
AZ	AZIMUTH
BAR-ANT	BAR-ANTENNA
BAT	BATTERY
BATT	BATTERY
BRG	BEARING
BTN	BUTTON
CAB	CABINET
CASS	CASSETTE
CHAS	CHASSIS
CLR	COLLAR
CONT	CONTROL
CRSR	CURSOR
CU	CUSHION
CUSH	CUSHION
DIR	DIRECTION
DUBB	DUBBING
FL	FRONT LOADING
FLY-WHL	FLYWHEEL
FR	FRONT
FUN	FUNCTION
G-CU	G-CUSHION
HDL	HANDOL
HIMERON	CLOTH
HINGE, BAT	HINGE, BATTERY
HLDR	HOLDER
HT-SINK	HEAT SINK
IB	INSTRUCTION BOOKLET
IDLE	IDLER
IND, L-R	INDICATOR, L-R
KEY, CONT	KEY, CONTROL
KEY, PRGM	KEY, PROGRAM
KNOB, SL	KNOB, SLIDE
LBL	LABEL
LID, BATT	LID, BATTERY
LID, CASS	LID, CASSETTE
LVR	LEVER
P-SPR	P-SPRING
PANEL, CONT	PANEL, CONTROL
PANEL, FR	PANEL, FRONT
PRGM	PROGRAM
PULLY, LOAD MO	PULLY, LOAD MOTOR
RBN	RIBBON
S-	SPECIAL
SEG	SEGMENT
SH	SHEET
SHLD-SH	SHIELD-SHEET
SL	SLIDE
SP	SPRING
SP-SCREW	SPECIAL-SCREW
SPACER, BAT	SPACER, BATTERY
SPR	SPRING
SPR-P	P-SPRING
SPR-PC-PUSH	P-SPRING, C-PUSH
T-SP	T-SPRING
TERM	TERMINAL
TRIG	TRIGGER
TUN	TUNING
VOL	VOLUME
W	WASHER
WHL	WHEEL
WORM-WHL	WORM-WHEEL
ジグアーム	ARM, SHAFT
ジグガイド	GUIDE, SHAFT
ストラップ	STRAP
トクナベ	S-SCREW
ヒンジ	HINGE
ヒンジビス	S-SCREW
ビスセレート	SCREW, SERRART